RENEGADE CLUBHOUSE

FINAL DRAINAGE REPORT PREPARED FOR: DESERT MOUNTAIN CLUB INC. 38580 N DESERT MOUNTAIN PARKWAY SCOTTSDALE, AZ 85262

PREPARED BY:



3838 NORTH CENTRAL AVE, SUITE 1900 PHOENIX, ARIZONA 85012 (602) 553-8817 FAX (602) 553-8816

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1.0 Introduction

Desert Mountain is in the process of developing a new golf clubhouse for their Renegade golf course. The proposed location for the new clubhouse is 38580 N. Desert Mountain Parkway, Scottsdale, AZ 85262. The site is accessed via Desert Mountain Parkway, which is the primary circulation route throughout the community. The overall site development will consist of demolition of the existing site amenities (including the existing clubhouse building and restaurant), construction of a new 21,083 square foot (sq. ft.) building, and realignment of Galloway Wash. Additionally, the access road, driveway, parking lot, cart path, and site trails will be modified and improved as necessary to accommodate the overall development. The vicinity map, Figure 1 below shows the Project Site location.

The portion of Galloway Wash to be realigned was initially realigned in the 1980s during the initial development of Desert Mountain and the Renegade golf course. The proposed development will re-establish the historic alignment of the wash.

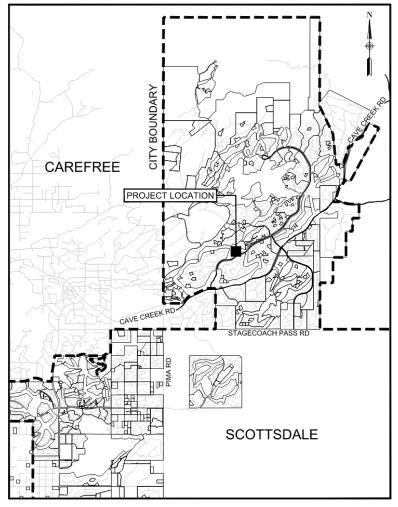


Figure 1: Vicinity Map



1.1 Purpose and Objective

The purpose of this drainage report is to illustrate the design approach and rationale utilized to design and analyze the wash realignment and stormwater management system for the Renegade Clubhouse. This drainage report summarizes the hydrologic and hydraulic analyses performed for the site, provides recommendations for drainage improvements, and is based on the currently applicable City of Scottsdale and Maricopa County codes, regulations, and design guidelines.

1.2 Previous Studies

Gannett Fleming has reviewed previous studies and reports which evaluated drainage in the general vicinity of the project along with the associated improvement plans. These studies and plans include:

- Master Drainage Report for Desert Mountain Development May 1992
 By A-N West, Inc. Consulting Engineers
- Detailed Drainage Design Report for Desert Mountain Properties Proposed Detention Basin No. S-1 March 1996
 By A-N West, Inc. Consulting Engineers
- Drainage Report for Desert Mountain
 Renegade Golf Course Golf Instruction Center
 August 2011
 By Gannett Fleming, Inc.
 Approved by City of Scottsdale via COS Plan Check Number 3796-11-1, dated 10/19/2011.

1.3 Review of Historic Aerial Imagery

Historic aerial imagery dating back to the 1990s was reviewed within Google Earth to understand the degree to which the wash has changed over the past 30 years. Figure 2 through Figure 6 show the evolution of this stretch of wash with yellow dashed lines delineating the approximate banks of the wash in 1992.

Desert Mountain performs a significant amount of maintenance on this wash as a part of their overall operations and maintenance for Renegade golf course. Reviewing the aerial imagery speaks to both the ongoing maintenance performed by Desert Mountain and the performance of the wash during rain events. Galloway wash has seen significant flow events over the last 30 years and the imagery shows only minimal changes in both wash alignment and extents. Minor



improvements to the driving range performance center on the south end of the wash can be seen in the 2007 and 2014 aerials.



Figure 2: 1992 Aerial Photo



Figure 3: 2003 Aerial Photo



Figure 4: 2007 Aerial Photo

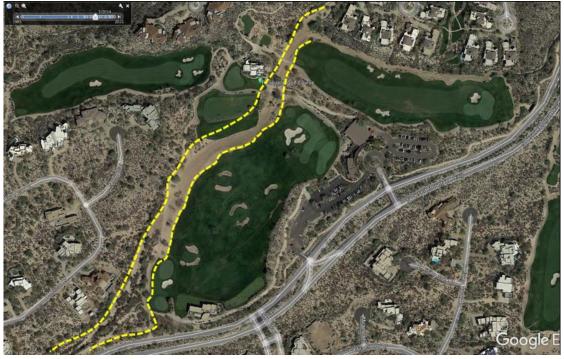


Figure 5: 2014 Aerial Photo



Figure 6: 2021 Aerial Photo

1.4 Vista Wash Corridor and ESLO Compatibility

Maintaining existing wash conditions and aesthetics is a critical element to this project. Both the City of Scottsdale Environmentally Sensitive Lands Ordinance (ESLO) and Vista Corridor guidelines were considered as part of the wash design and erosion protection methods.

1.5 Summary of Approach

According to the hydraulic calculations documented within this report, the wash currently experiences high velocities, and because the proposed design does not significantly alter the hydraulic characteristics of the wash, the proposed channel configuration is expected to experience similarly high velocities. Many channel lining alternatives (sourced from City of Scottsdale and Maricopa County documents) were evaluated in order to protect the realigned channel against erosion. These alternatives are presented in Figure 7 along with a high-level scoring and weighting. Based on this alternatives evaluation, an articulated concrete block (ACB) mattress system has been selected to protect the channel against erosion. The ACBs are proposed to be buried beneath 18" (+/-) of sacrificial cover, which will allow for vegetation growth consistent with a desert wash and will allow the wash to maintain a natural aesthetic. Figure 8 shows a rendering of the proposed wash and erosion protection after installation and vegetation.

1									
Channel Alternatives	Cost	ESLO Compatability / Aesthetics	о&м		Compatable with Max Velocity of 16 fps	Compatable with existing HGL (sediment transport)	Weighted Summation	Unweighted Summation	Notes
Grouted Rip Rap lined	1	1	3	3	3	3	23	14	Prevents vegetation growth. Maximum recommended velocity 15 fps per MCFCD and side slopes 2:1.
Soil Cement lined	1	1	3	3	2	2	19	12	Increased velocities through channel section, leading to potential adverse downstream impacts. Maximum recommended velocity 15 fps per MCFCD and side slopes 3:1.
Loose rip rap lined	3	1	2	3	3	2	22	14	Can be sized accordingly, however preliminary calcs indicate excessively large rip rap size (d50 = 36"). Maximum recommended side slopesper MCFCD is 2:1.
Unlined (vegetated)	4	4	1	0	0	3	15	12	Existing wash condition is unlined. Regular wash maintenance required to restore erosion (maintain channel section). Maximum recommended side slopesper MCFCD is 4:1.
Concrete lined	1	1	3	3	3	2	21	13	Increased velocities through channel section, leading to potential adverse downstream impacts. Maximum recommended velocity 15 fps per MCFCD and side slopes 3:1.
Gabion Mattress Lined	2	2	3	3	2	3	23	15	Ideal for subcritical flow. Gabion mattress wires could be subject to damage from high debris flows. Maximum recommended velocity 9 fps per MCFCD.
Closed Conduit (Culvert)	1	3	2	3	3	2	22	14	Increased velocities through culverts /closed conduits, leading to potential adverse downstream impacts.
Unlined, Flattened Slope with Drop Structure(s)	1	2	1	2	2	1	14	9	
Buried Articulated Concrete Block (ACB) Mattress	1	3	2	3	3	3	24	15	
ArmorMax and ScourLock Lining (bank and scour depth protection only)	2	3	2	2	0	3	17	12	Recommended for turf applications. Maximum permissible velocity for unvegetated conditions is 13 fps and 25 fps for vegetated conditions.
ArmorMax 75 High Performance Turf Reinforcement Mat Lined	3	2	2	3	0	3	19	13	Recommended for turf/vegetated applications. Maximum permissible velocity for unvegetated conditions is 13 fps and 25 fps for vegetated conditions.
Unlined with Grade Control Structures	3	3	1	2	1	2	17	12	
Weighted Factors	1	1	1	2	2	2			

Rating Guide				
Fatal Flaw (not viable)				
	1			
Not enough information/lower rating than neutral	2			
Neutral (meets requirement/consideration)	3			
	4			
Exceeds requirement/consideration	5			

Figure 7: Channel Alternatives Selection and Rating Guide





Figure 8: Wash Rendering and Future Vegetation

2.0 Existing Drainage Conditions

The Project Site's existing conditions include the Renegade Clubhouse, Renegade Hideout restaurant, golf course driving range, and a section of Galloway Wash that flows to the south of the existing restaurant between holes 1 and 18. The Site is located within the mountainous terrain of North Scottsdale with varying slopes ranging from 3% to 12%. On-site drainage primarily drains to the west via overland flow through the parking lot and driving range. Site runoff concentrates in the southwest corner of the driving range and discharges into Galloway Wash via a combination of 24-inch diameter culverts and small channels running parallel to Desert Mountain Parkway for approximately 200 feet. The off-site watershed areas consist of the golf course and landscape natural areas. Figure 9 shows the existing site's current drainage patterns.

The site is located in Zone D according to the Flood Insurance Rate Map (FIRM) #04013C0903L prepared by the Federal Emergency Management Agency (FEMA) dated September 30, 2005. Zone D is defined as areas in which flood hazards are undetermined but possible. See Appendix B for a FEMA-FIRMette map of the area.

Exhibits for the pre-development drainage conditions and runoff coefficients by land use are provided in Appendix C. The exhibits delineate the site drainage areas and tabulate their respective 2-, 10-, 100-year flows and runoff coefficient (C) values.



Figure 9: Existing Site Conditions

3.0 Proposed Drainage Conditions

The proposed clubhouse seeks to minimize disturbance to existing offsite flows, maintain the natural terrain, and convey new on-site flows mainly as overland runoff through the site access roads and the north and east parking lots. Approximately 70% of the runoff from the project site will concentrate at three main locations within the golf driving range and leave the site at the historical outfall, denoted by concentration point CP-4. Figure 10 shows the proposed site drainage patterns.

First flush treatment of runoff from impervious surfaces will be accomplished mainly by two stormwater harvesting ponds and routing runoff through the driving range. Additionally, this project site is within the Desert Mountain South Watershed, which drains to detention basin S-1. The detention basin S-1 was established as part of the Desert Mountain 1992 Master Drainage Plan to attenuate the stormwater runoff and to eliminate the need for on-site storage to be provided throughout much of Desert Mountain.

An approximately 900-foot portion of Galloway Wash within the project boundary will be realigned to its historical location. In addition to restoring the historical alignment of the wash, the proposed alignment will improve the safety conditions of the site during rain events or flash floods. Currently, the access drive to the existing Renegade Hideout restaurant is a wet crossing



where traffic must drive across the bottom of the wash. The realignment and new clubhouse construction will eliminate this condition and prevent potentially dangerous crossings of an inundated access drive.

The historic drainage path and downstream storage capacity will not be adversely affected based on the post-development conditions.



Figure 10: Proposed Site Conditions

Exhibits for the post-development drainage conditions and runoff coefficients by land use are provided in Appendix C. The exhibits delineate the site drainage areas and tabulate their respective 2-, 10-, 100-year flows and runoff coefficient (C) values.

4.0 Wash Relocation and Section 404 Compliance

Desert Mountain is proposing to modify the alignment of Galloway Wash within the Renegade Golf Course as a part of the reconfiguration of the adjacent golf facilities and the construction of a new clubhouse and associated parking and access routes. The specific section of wash to be realigned is approximately 900 feet long and passes between the 1st and 18th holes on the south of the existing Renegade Hideout restaurant. The proposed alignment of the wash will reroute it north of the proposed clubhouse before rejoining the existing wash alignment. The existing alignment of the wash was established during the construction of the golf course, which opened



in 1987. The intent of this realignment is to restore the wash to its original (historic) alignment. This is supported by the drainage reports prepared around that same time and by historic USGS maps which only recently have been updated to reflect the current alignment of the wash (see Appendix A).

The construction and re-alignment of Galloway Wash to its historical location was approved by the U.S. Army Corps of Engineers under Nationwide Permit No. 3 (correspondence dated February 4, 2020).

A copy of the City of Scottsdale's Section 404 Certification form is included in Appendix G.

5.0 Stormwater Storage

Stormwater storage for the Desert Mountain South watershed is provided by the existing detention basin, S1 west of the project site (see Appendix A). Additionally, the proposed development does not significantly increase the site's overall runoff or modify the historical outflow locations. No new stormwater storage is required.

6.0 Finished Floor Elevation

The proposed building has a finished floor elevation of 2827.00 and a lowest floor elevation of 2813.00 with an elevator shaft extending below the lowest floor to elevation 2809.00. The 100-year water surface elevation within the adjacent wash will be approximately at elevation 2822.0. The building and surrounding site are being designed to provide positive drainage away from the building at all locations. Due to these conditions, a sub-surface drainage system (along with waterproofing) is recommended (sub-surface drainage system to be designed by others).

See Appendix D for civil site sections and Appendix F for hydraulic analysis sections.

7.0 Hydrologic Analysis

A rational method analysis was performed on the Project Site using the Flood Control District of Maricopa County (FCDMC), Drainage Design Management System (DDMSW, Version 5.6). The runoff coefficients within DDMSW were modified to match the values outlined in the City of Scottsdale's Design Standards & Policies Manual, 2018 (DSPM) [1].

7.1 Methodology

For this project, the rational method as outlined in the FCDMC Hydrology Design Manual (December 2018) [2] was used and the site drainage areas were based on site plans, topographic contours, and aerial photography and were delineated using Autodesk Civil 3D software.



The City of Scottsdale allows for use of the rational method for estimating peak flow discharge for watersheds that are regularly shaped, uniformly contoured, and less than 160 acres. Additionally, the use of DDMSW for hydrology calculations is also permitted and was utilized as part of this analysis.

The parameters outlined below were established and used as input for the rational method. An areally-weighted runoff coefficient, *C*, was computed for each drainage area for both the existing and proposed site conditions according to the Section 4-1.504 of the City of Scottsdale's DSPM. See Table 1 for the summary of runoff coefficients used in this analysis.

Table 1 Runoff Coefficient – 'C' Value (DSPM 2018)

Land Use	Storm Frequency				
	2-25 Years	50 Years	100 Years		
Pavement / Roofs	0.90	0.93	0.95		
Desert Landscape	0.63	0.73	0.83		
Golf Course	0.20	0.25	0.30		

The Rainfall Intensity, i, for the project site was calculated using DDMSW and rainfall data was validated using NOAA 14 downloaded data. NOAA 14 data can be found in Appendix E. Time of Concentration was calculated using DDMSW.

7.2 Results

The Peak Flow Rate, Q, was calculated using DDMSW with C, i, and A as input parameters for all the drainage areas for both pre-development and post-development conditions. Table 2 summarizes the 100-year peak flow results.

Pre-Development Post-Development Drainage Area Area Q_{100} Q_{100} Area ID (acres) (cfs) (acres) (cfs) DA-1 7.3 24.0 7.9 27.2 DA-2 2.0 9.4 DA-3 25.5 4.6 DA-3A 4.4 24.5 DA-3B 1.4 8.1 DA-4 4.5 26.6 3.8 22.5 DA-5 4.5 19.8 DA-5A 2.1 8.1 DA-5B 2.2 12.5 DA-6 14.4 39.0 10.2 22.2 10.6 2.4 DA-7 2.0 10.6

Table 2: Pre and Post Development 100-year Peak Flow

8.0 Hydraulic Analysis and Results

The hydraulic analyses presented herein were completed using HEC-RAS version 5.0.7. A detailed breakdown of the analyses is provided below.

8.1 HEC-RAS Geometry Development

Existing and proposed condition surfaces were constructed using Autodesk Civil 3D software and were based on a recent survey and proposed grading plans. These surfaces were exported into GeoTIFF format for importing into HEC-RAS. The terrains within HEC-RAS were created with a 0.2-foot cell size to preserve the detail of the vertical walls.

Cross sections were cut along the length of the existing and proposed washes at a spacing of approximately 60 feet. Care was taken to ensure the beginning and the end cross-sections and conditions were the same between the existing and proposed conditions.

8.2 Flow Rate

A 100-year flow rate of 2,255 cfs was determined from the Desert Mountain Area Drainage Master Study FLO-2D model [3]. Due to the nature of and stability within the upstream watershed (particularly with respect to flow patterns), a 30% uncertainty factor has not been applied to the FLO-2D model results. See Appendix F for FLO-2D model data.

8.3 Roughness

Manning's roughness values were calculated based on guidance within Chapter 7.6 of the FCDMC Hydraulics Design Manual (December 2018) [4]. A roughness value of 0.034 was applied to the channel portion and a roughness value of 0.042 was applied to the overbanks within the entire model. Table 3 shows the selected roughness values how the values were computed.

Main Channel Overbank Condition Min Section Selection Component Max Avg. **Base Roughness** Coarse Sand ($D_{50}=1.5$ mm) 0.026 0.035 0.031 0.031 0.031 **Irregularity** Smooth to Minor 0.000 | 0.005 0.003 0.000 0.004 Variation Gradual 0.000 | 0.000 0.000 0.000 0.000 Obstruction Negligible 0.000 0.004 0.002 0.002 0.002 Vegetation Negligible to Small 0.000 | 0.010 0.005 0.001 0.005 Total 0.034 0.042

Table 3: Manning's Roughness Values

8.4 Boundary Conditions

HEC-RAS models were run in both the subcritical and mixed regimes in order to evaluate the worst-case conditions for both depth of flooding and velocity. The upstream and downstream boundary conditions were set to critical depth at the upstream and normal depth based on a slope of 0.02 feet/foot at the downstream.

8.5 HEC-RAS Results

Comparison of the existing and proposed conditions shows small differences in the overall flow characteristics. The proposed improvements do not reduce the capacity of the wash to convey the 100-year flows. The inundation boundaries for the existing and proposed conditions are shown in Figure 11 and Figure 12.

It should be noted that HEC-RAS determined the flow within the wash to be supercritical; however, the model was run in subcritical mode to produce greater flow depths and consequently conservative results to the extent of inundation. Table 4 and Table 5 present summaries of channel depths and velocities for the existing and proposed conditions, respectively. See Appendix F for HEC-RAS output data.

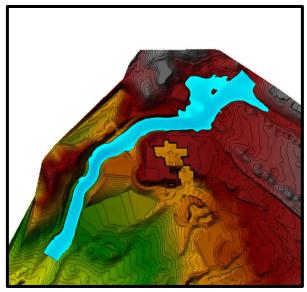


Figure 11: HEC-RAS Proposed Conditions

Figure 12: HEC-RAS Existing Conditions

Table 4: Existing Flow Conditions (100-year event)

	Max Channel	
Reach	Depth	Velocity
Station	(ft)	(fps)
1896	3.8	9.0
1836	2.4	13.8
1778	3.4	11.5
1725	3.3	12.1
1672	4.3	10.0
1614	4.1	11.6
1565	3.1	13.5
1520	2.8	13.3
1454	3.8	7.3
1370	2.7	19.2
1322	5.8	11.3
1275	4.3	15.3
1211	2.5	17.5
1164	2.4	13.6
1078	4.4	9.9
990	2.9	14.6
892	3.1	12.6
771	3.6	12.2

Table 5: Proposed Flow Conditions (100-year event)

Reach Station	Max Channel Depth (ft)	Velocity (fps)	Required Freeboard (ft)
1928	3.8	9.0	1.5
1868	2.4	13.8	1.5
1810	3.3	11.4	1.4
1757	3.5	11.7	1.4
1704	4.4	7.2	1.4
1605	4.4	12.5	1.7
1546	3.6	15.1	1.8
1462	3.9	14.5	1.8
1391	3.6	15.1	1.8
1341	3.5	14.5	1.7
1302	4.4	11.7	1.7
1263	5.6	10.4	1.8
1218	4.9	13.8	2.0
1137	4.4	16.0	2.1
1045	4.1	16.3	2.1
913	3.5	16.2	1.9
771	3.4	13.2	1.5

Velocities within the proposed conditions model are comparable to existing conditions and in fact the proposed condition velocities are reduced along much of the project reach.

The freeboard calculations shown in Table 5 are discussed in Section 8.6, below.

8.6 Freeboard Calculations

Minimum required freeboard for the realigned wash was computed according to Equation 6.25 in the FCDMC Hydraulics Design Manual [4]. Per the Manual, the freeboard shall be the larger of 2 feet or the results of Equation 6.25. All locations along the realigned wash will have the required freeboard within the channel section.

8.7 Lateral Erosion

Due to the anticipated high velocities within this portion of Galloway Wash, the potential for lateral erosion and migration of the channel needs to be evaluated and understood. The FCDMC provides guidance for estimating lateral erosion potential within Section 11.9 of the Hydraulics Design Manual [4]. However, the district's guidance is applicable only to natural channels, which does not apply to this portion of channel, either in its existing or proposed alignment.



Following guidance provided by FCDMC, Arizona State Standard 5-96, Watercourse System Sediment Balance, was reviewed. Guideline 1 of this document provides procedures for estimating the setback distances to be provided along watercourses where lateral erosion is a concern. Following this procedure, a Level 1 analysis was performed which is a high-level evaluation, and consequently provides conservative results. The more detailed Level 2 and Level 3 evaluations cannot be performed at this time due to insufficient information about the subsurface conditions within the proposed alignment.

The Level 1 analysis requires only the 100-year flow rate as input. This value was determined as documented in Section 8.2 and was input into the following equation to estimate the recommended setback distance for "straight channel reaches or reaches with minor curvature":

$$setback = 1.0 * Q_{100}^{0.5}$$

"Minor curvature" is defined within the State Standard as a channel centerline where the radius of curvature is greater than 5 times the channel top width. Within this portion of the realigned wash, HEC-RAS reports an average top width of approximately 72 feet, and the overall radius of the realignment was measured within AutoCAD to be approximately 400 feet. Therefore, this reach may be considered to have "minor" curvature, and a setback distance of 48 feet is computed by this Level 1 analysis. It is important to note that this calculation represents the potential lateral erosion from a single flow event.

Two primary locations of concern with respect to lateral erosion were identified by both City of Scottsdale and FCDMC personnel: the proposed clubhouse to the south of the proposed wash alignment and residential structures to the west of the proposed wash alignment (see Figure 13). The proposed design includes protection of both areas of concern.

A 50-foot golf course easement exists on the eastern property boundary of the properties to the west of the proposed wash realignment, as shown on Figure 13. When the potential lateral setback is plotted, it extends into the private property but not beyond the bounds of the golf course easement. The golf course easement grants Desert Mountain the ability to perform "construction, maintenance and repair of the Golf Club Facilities and related improvements." Consistent with this easement and with their current practices, Desert Mountain staff will maintain the wash and repair and restore any lateral migration of the wash that may have occurred during a significant flow event. However, erosion protection measures are included with the design to prevent significant scouring and lateral erosion from occurring.

The proposed design includes lining the entirety of the realigned channel with articulated concrete blocks (ACBs), and also constructing mechanically stabilized earth (MSE) walls between the proposed clubhouse and the realigned wash. The MSE walls will be constructed down to the

computed scour depths. Additional discussion related to the ACBs and MSE walls is included in Section 9.1 and Section 9.2, respectively.

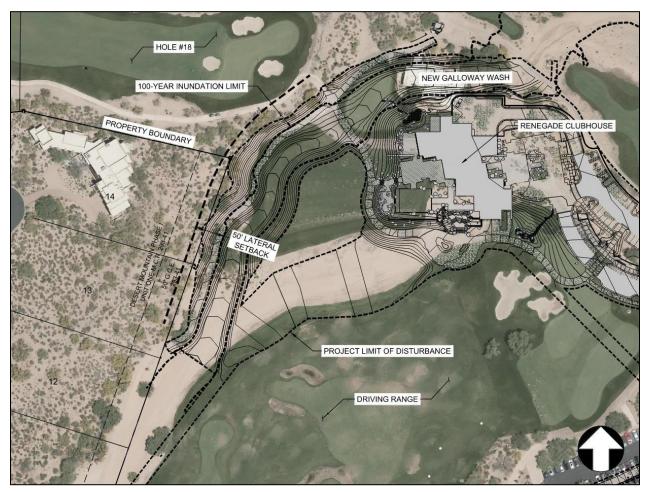


Figure 13: Depiction of Lateral Erosion Setback

8.8 Scour

A scour analysis for the proposed alignment of Galloway Wash was completed using DDMSW. HEC-RAS analysis results were imported into DDMSW and were used to calculate general, bedform, and low flow scour for the 100-year storm. Long-term scour was not considered due to Desert Mountain's proactive approach of maintaining the wash and restoring the channel following any erosion or flow events.

Scour depths ranging from 7.8 feet to 10.5 feet are calculated for the proposed alignment and geometry of Galloway Wash. These values and the individual scour components are summarized in Table 6.

Reach Station	General Scour (ft)	Bedform Scour (ft)	Low-Flow Scour (ft)	Total Scour (ft)
1704	3.1	1.3	3.4	7.8
1604	3.1	2.8	3.4	9.3
1545	3.1	4.0	3.4	10.5
1462	3.1	3.7	3.4	10.2
1390	3.1	4.0	3.4	10.5
1341	3.1	3.7	3.4	10.3
1301	3.1	2.5	3.4	9.0
1263	3.1	2.0	3.4	8.6
1218	3.1	3.5	3.4	10.1
1137	1.6	4.6	3.4	9.6
1045	1.6	4.7	3.4	9.7
913	1.6	4.6	3.4	9.6
771	1.6	3.1	3.4	8.1

Table 6: Summary of Calculated Scour Depths

8.9 Sediment Transport

High-level sediment transport calculations were performed as part of the wash relocation design to understand the channel bed material discharge characteristics for both the existing and proposed wash alignments within the project limits. Assuming an equilibrium condition, the total bed material discharge rate was calculated in accordance with Section 11.7.3.3 and the Zeller-Fullerton equation (Equation 11.44) within the FCDMC Hydraulics Design Manual [4]. Results from the HEC-RAS models were used as the basis for these calculations.

Based on review of the historic aerial imagery and Desert Mountain's experience maintaining this wash over the past 30 years, it is assumed that Galloway Wash and its watershed are in equilibrium condition with respect to sediment load. It is also expected that an equilibrium state will be re-established shortly after the completion of the wash realignment. Figure 14 shows a graph of the total bed material load for both the existing and proposed conditions. The results of these calculations show that the total bed load for the realigned reach is not expected to increase the transport of material, and in fact the calculations show the proposed configuration to have a slightly decreased bed load carrying capacity. It is not expected that the realignment of the wash will result in increased sediment load being transported and deposited within the wash downstream.

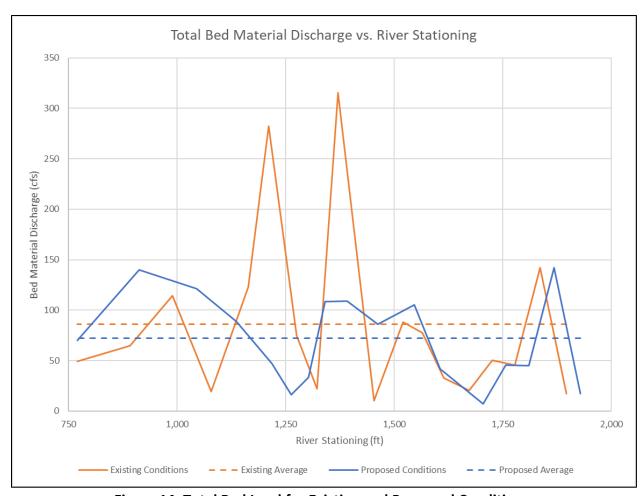


Figure 14: Total Bed Load for Existing and Proposed Conditions

9.0 Scour and Erosion Protection Measures

Various forms of protection from erosion and scour are documented within the sections below.

9.1 Articulated Concrete Blocks (ACBs)

Due to the potential erosion and high velocities generated by the mountainous terrain present in North Scottsdale, an articulated concrete block mattress and supporting geotextile fabric has been selected to protect the wash bottom and side slopes from significant scour and erosion. The ACB mattress system consists of formed concrete blocks laced together with stainless steel or synthetic high strength cabling. Each mattress is placed on a geotextile fabric and will be covered by approximately 18" (+/-) of sacrificial soil cover. The sacrificial cover will allow for native desert vegetation to establish and will maintain the natural aesthetic of the Galloway Wash. Adjacent mattresses are "stitched" together after placement in order to provide additional stability to the ACB system as a whole. A detail showing the typical configuration of the ACB mattresses is shown in Figure 15. Consistent with their current practice, Desert Mountain



personnel will inspect the wash after any flow event. If necessary, the wash will be raked and repaired to re-establish the sacrificial cover over the ACBs.

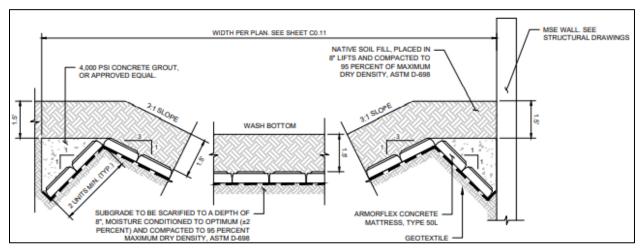


Figure 15: ACB Wash Section

9.2 MSE Walls and Clubhouse Protection

Two mechanically stabilized earth (MSE) walls, approximately 280 feet in length, are proposed adjacent to the clubhouse and will be utilized to mitigate the scour and lateral erosion potential of the wash during a flood event, where high velocities could impact the short-term stability of the wash side slopes and channel bottom. Figure 16 below shows a section view of the MSE walls and freestanding walls proposed just north of the clubhouse. The MSE walls will be constructed down to the computed 100-year scour depth. The combination of MSE walls and ACB mattress system will provide the proposed clubhouse with significantly more protection when compared to the existing restaurant under the current configuration.

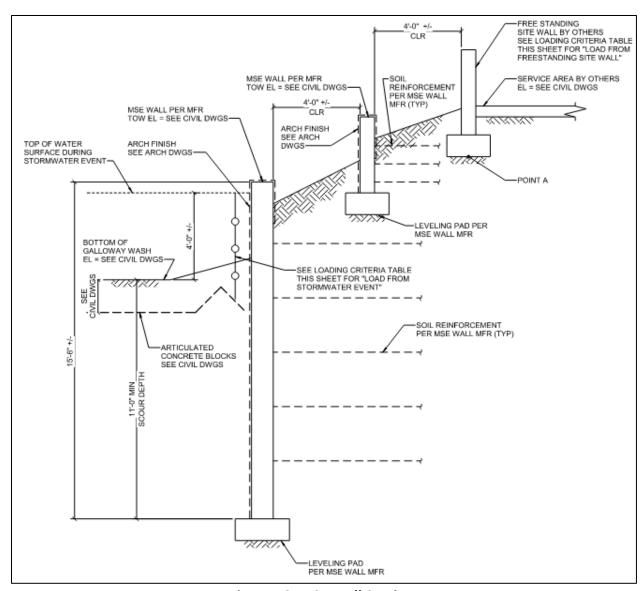


Figure 16: MSE Wall Section

9.3 Utility Protection

Three existing utility lines (sewer, electric and gas) currently cross Galloway Wash within the project limits. The existing sanitary sewer crossing will be removed and realigned out of the wash. The proposed sewer realignment removes the wash crossing and also increases the cover depth on the sewer line, a significant improvement on the existing conditions. The existing electric line servicing the small starter shack will be relocated and buried to scour depth while the existing gas line will be capped, have its service disconnected and will be abandoned in place. See Appendix D for civil site plans depicting the utility relocation and starter shack location.

10.0 References

- [1] City of Scottsdale, Design Standards & Policies Manual, 2018.
- [2] Flood Control District of Maricopa County, *Drainage Design Manual for Maricopa County, Arizona Hydrology,* 2018.
- [3] Flood Control District of Maricopa County, "FLO-2D Map," 13 June 2019. [Online]. Available: https://gis.maricopa.gov/FLO-2DModels/map.html.
- [4] Flood Control District of Maricopa County, *Drainage Design Manual for Maricopa County, Arizona Hydraulics,* 2018.

Appendix A Exhibits

- Exhibit A-1 Aerial Image
- Exhibit A-2 S 1 Detention Basin Location
- Exhibit A-3 On Site Drainage Map from 1985 Preliminary Hydrology Report for Gambel Rezoning at the Ranch at Carefree overlaid on recent Bing® aerial image
- Exhibit A-4 Existing Conditions Drainage Map from 1985 Preliminary Hydrology Report for Gambel Rezoning at the Ranch at Carefree overlaid on recent Bing® aerial image
- Exhibit A-5 Figure 2 from 1996 Detailed Drainage Design Report for Desert Mountain Properties

 Proposed Detention Basin No. S 1 overlaid on recent Bing® aerial image1965 USGS

 map overlaid on recent Bing® aerial image
- Exhibit A-6 1965 USGS map overlaid on recent Bing® aerial image
- Exhibit A-7 2004 USGS map overlaid on recent Bing® aerial image
- Exhibit A-8 2018 USGS map overlaid on recent Bing® aerial image

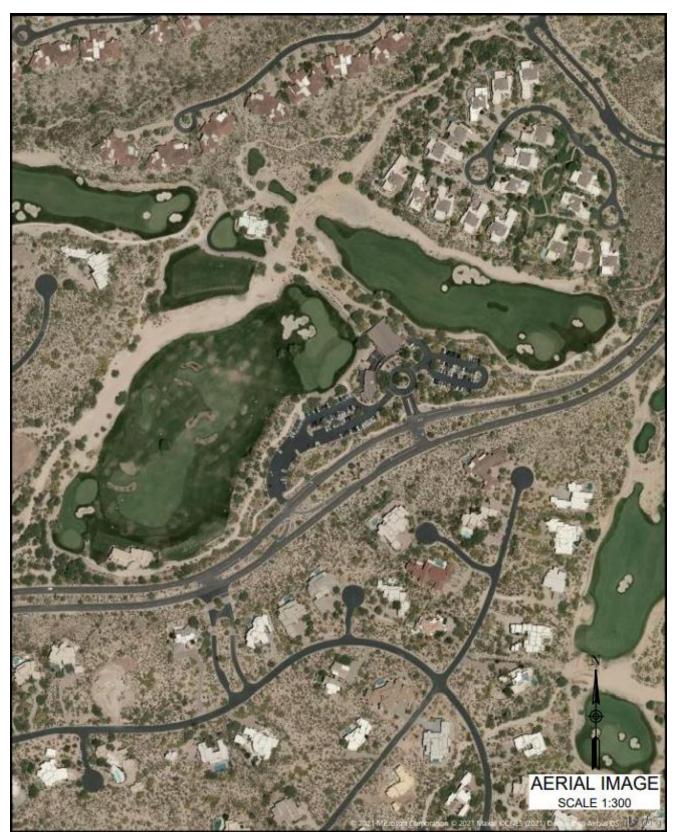


Exhibit A-1 – Aerial Image



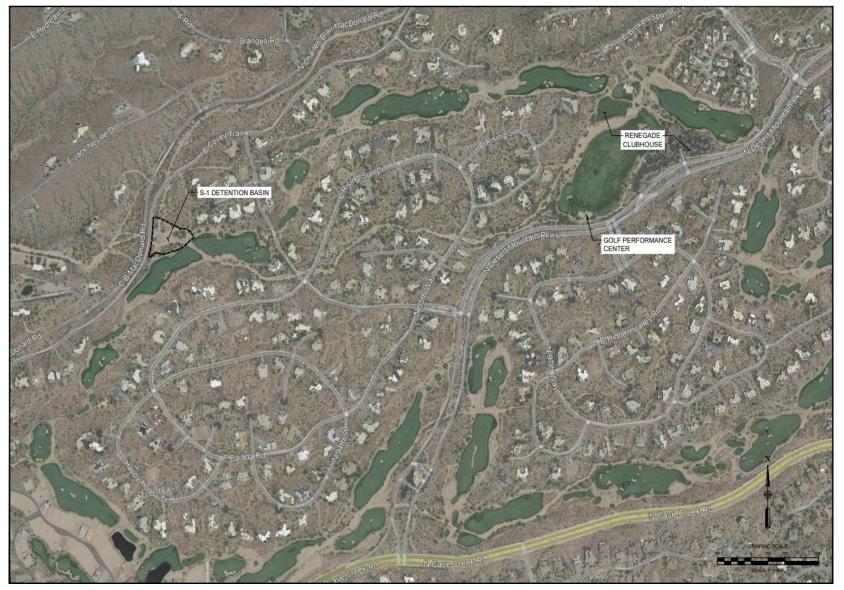


Exhibit A-2 - S-1 Detention Basin Location



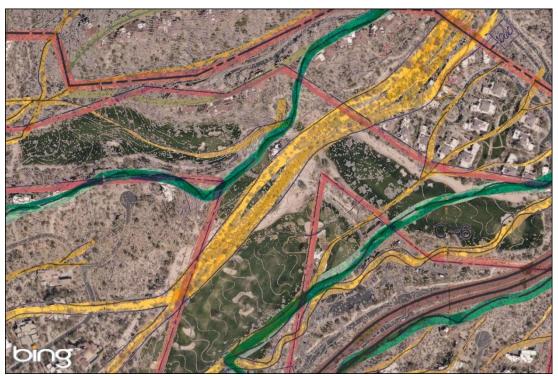


Exhibit A-3 – On Site Drainage Map from 1985 Preliminary Hydrology Report for Gambel Rezoning at the Ranch at Carefree overlaid on recent Bing® aerial image



Exhibit A-4 – Existing Conditions Drainage Map from 1985 Preliminary Hydrology Report for Gambel Rezoning at the Ranch at Carefree overlaid on recent Bing® aerial image



Exhibit A-5 – Figure 2 from 1996 Detailed Drainage Design Report for Desert Mountain Properties Proposed Detention Basin No. S-1 overlaid on recent Bing® aerial image



Exhibit A-6 – 1965 USGS map overlaid on recent Bing® aerial image

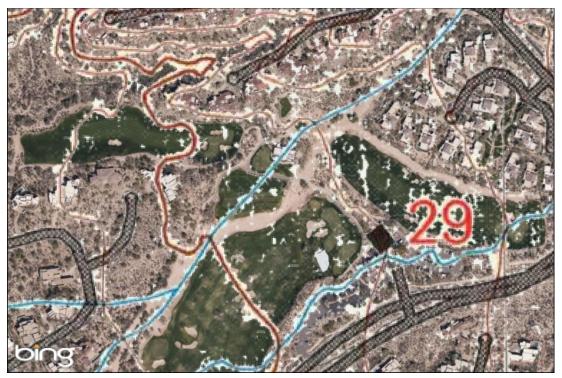


Exhibit A-7 – 2004 USGS map overlaid on recent Bing® aerial image

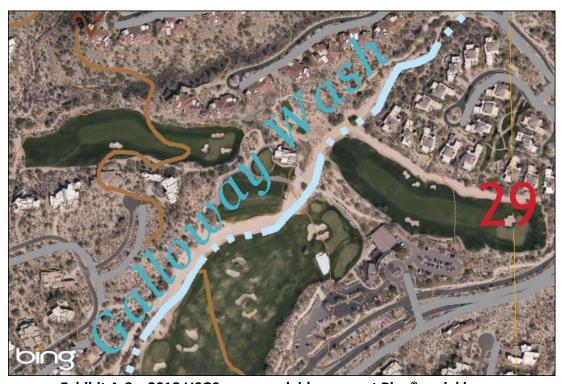
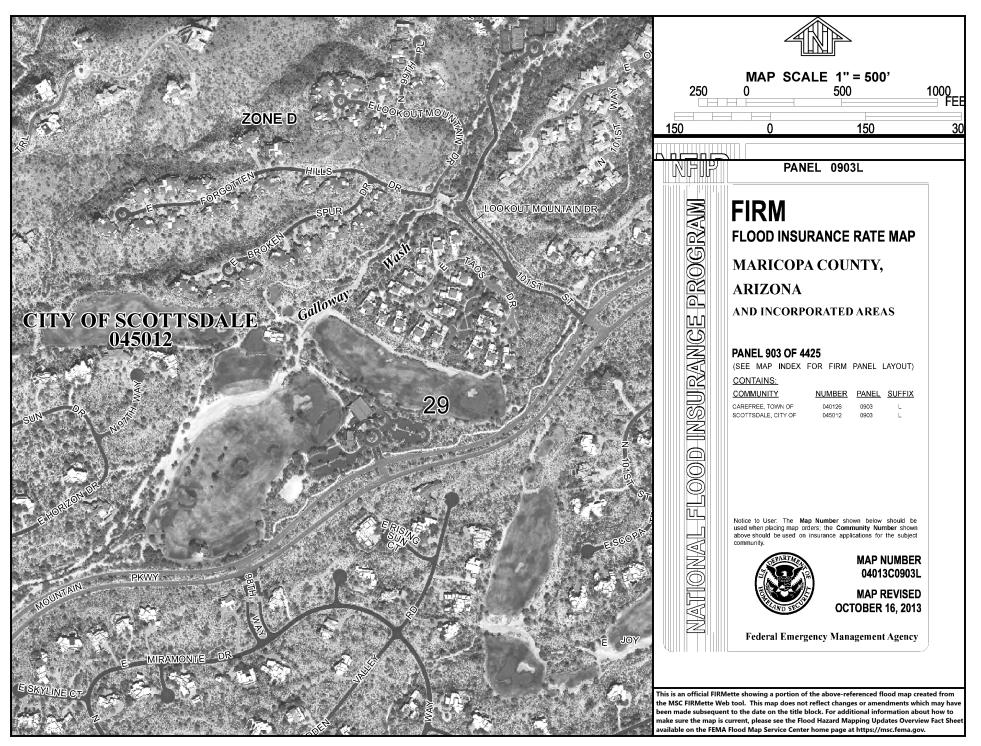


Exhibit A-8 – 2018 USGS map overlaid on recent Bing® aerial image

Appendix B FEMA FIRMette





National Flood Hazard Layer FIRMette



SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT Without Base Flood Elevation (BFE) Zone A, V, A99 With BFE or Depth Zone AE, AO, AH, VE, AR

With BFE or Depth Zone AE, AO, AH, VE, AR SPECIAL FLOOD **HAZARD AREAS** Regulatory Floodway 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X **Future Conditions 1% Annual** Chance Flood Hazard Zone X Area with Reduced Flood Risk due to Levee. See Notes. Zone X OTHER AREAS OF FLOOD HAZARD Area with Flood Risk due to Levee Zone D NO SCREEN Area of Minimal Flood Hazard Zone X Effective LOMRs OTHER AREAS Area of Undetermined Flood Hazard Zone D - - - Channel, Culvert, or Storm Sewer **GENERAL** STRUCTURES | LILLI Levee, Dike, or Floodwall 20.2 Cross Sections with 1% Annual Chance 17.5 Water Surface Elevation **Coastal Transect** ₩₩ 513 WW Base Flood Elevation Line (BFE) Limit of Study Jurisdiction Boundary -- Coastal Transect Baseline OTHER **Profile Baseline FEATURES** Hydrographic Feature Digital Data Available No Digital Data Available MAP PANELS Unmapped The pin displayed on the map is an approximate

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below.

The basemap shown complies with FEMA's basemap accuracy standards

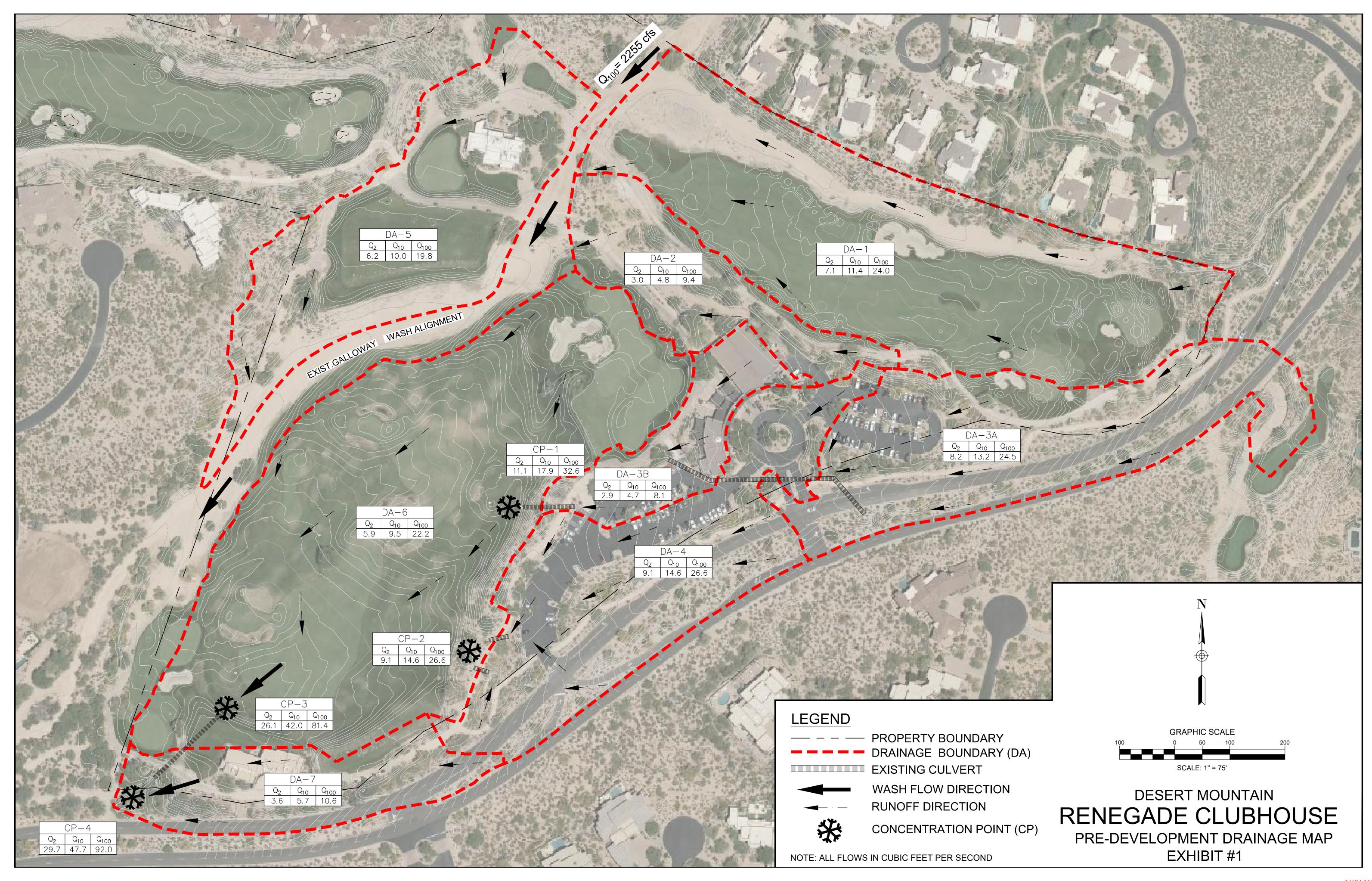
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/6/2021 at 5:31 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

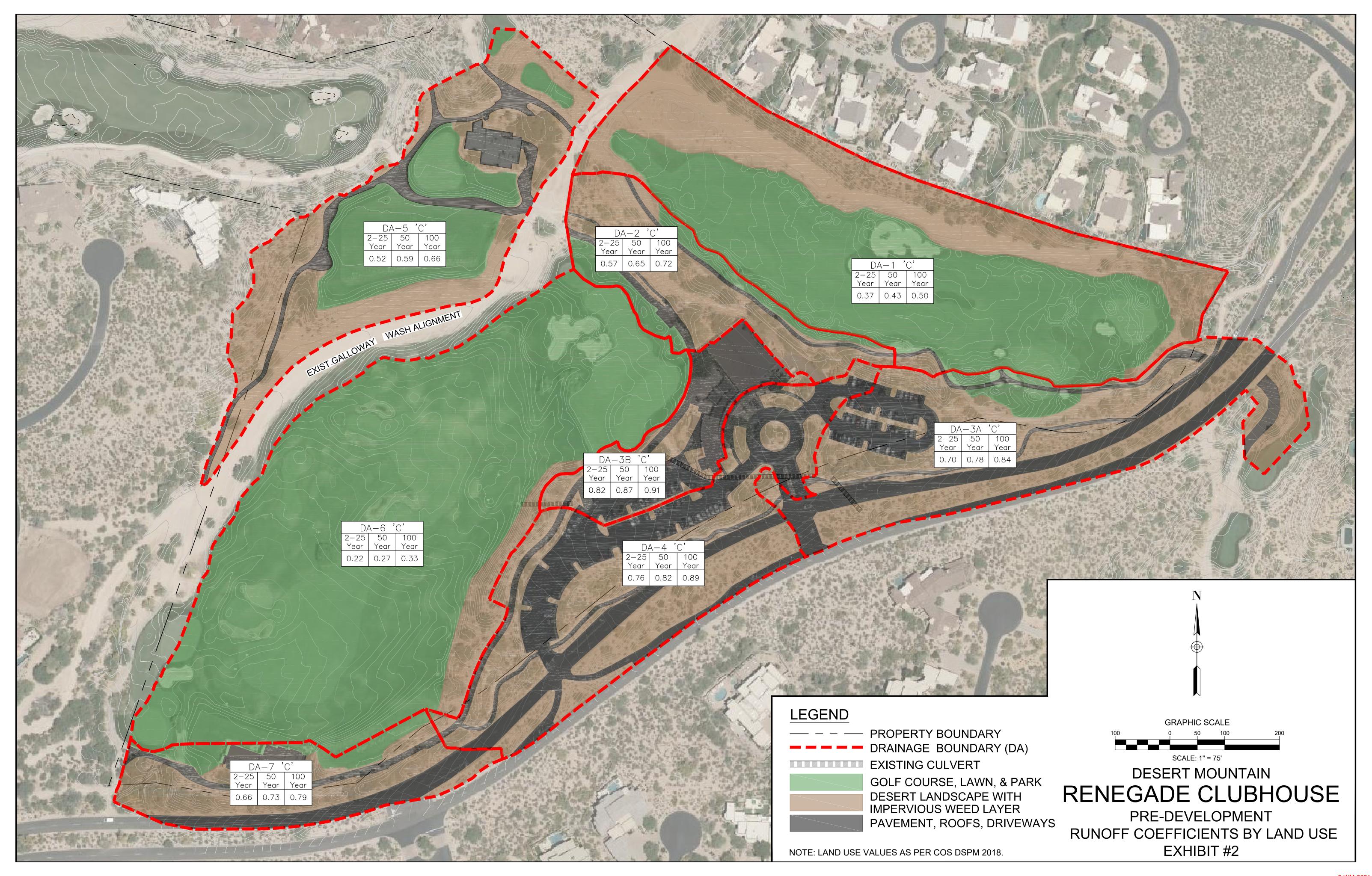
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

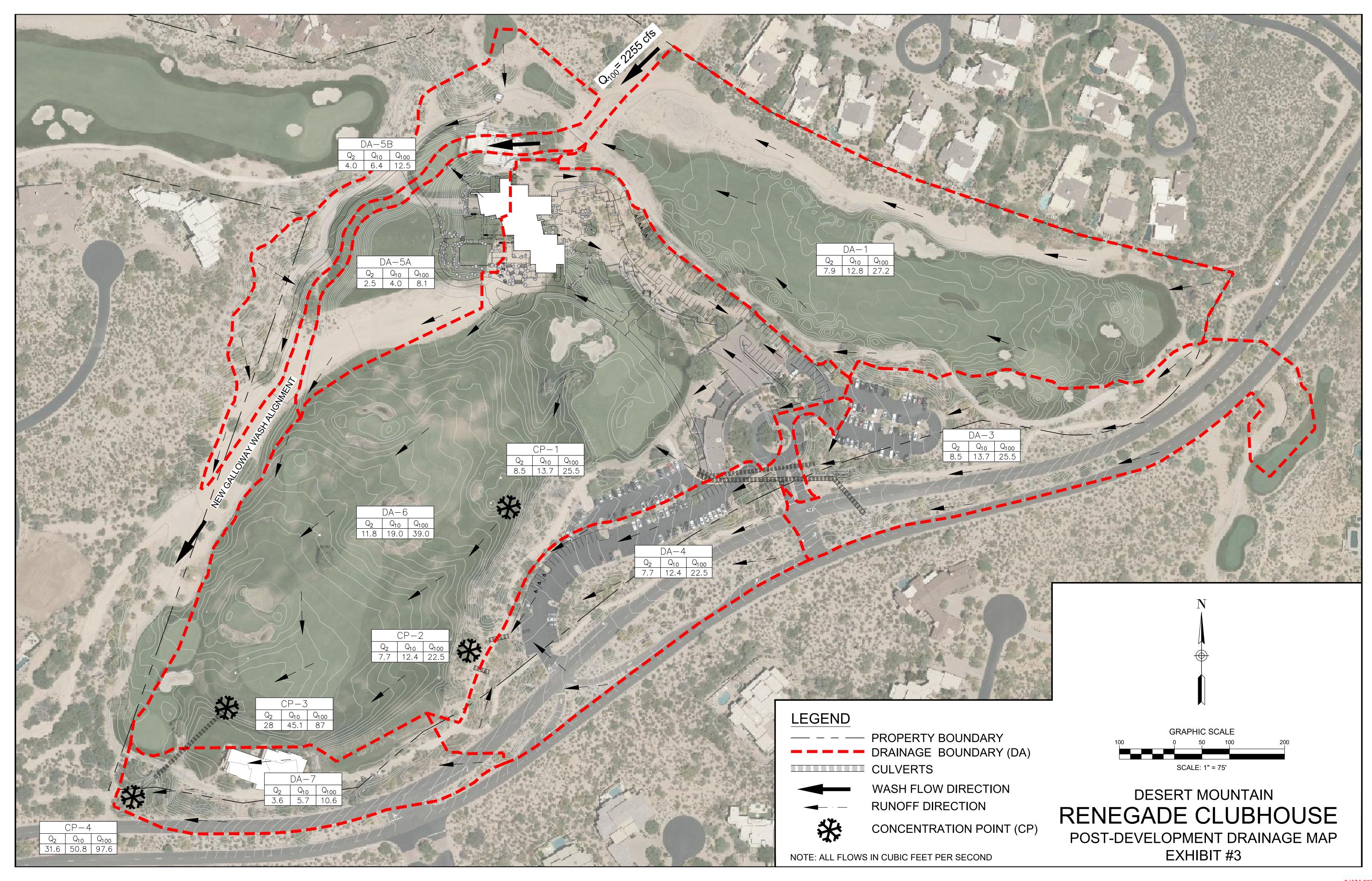
6-WM-2021

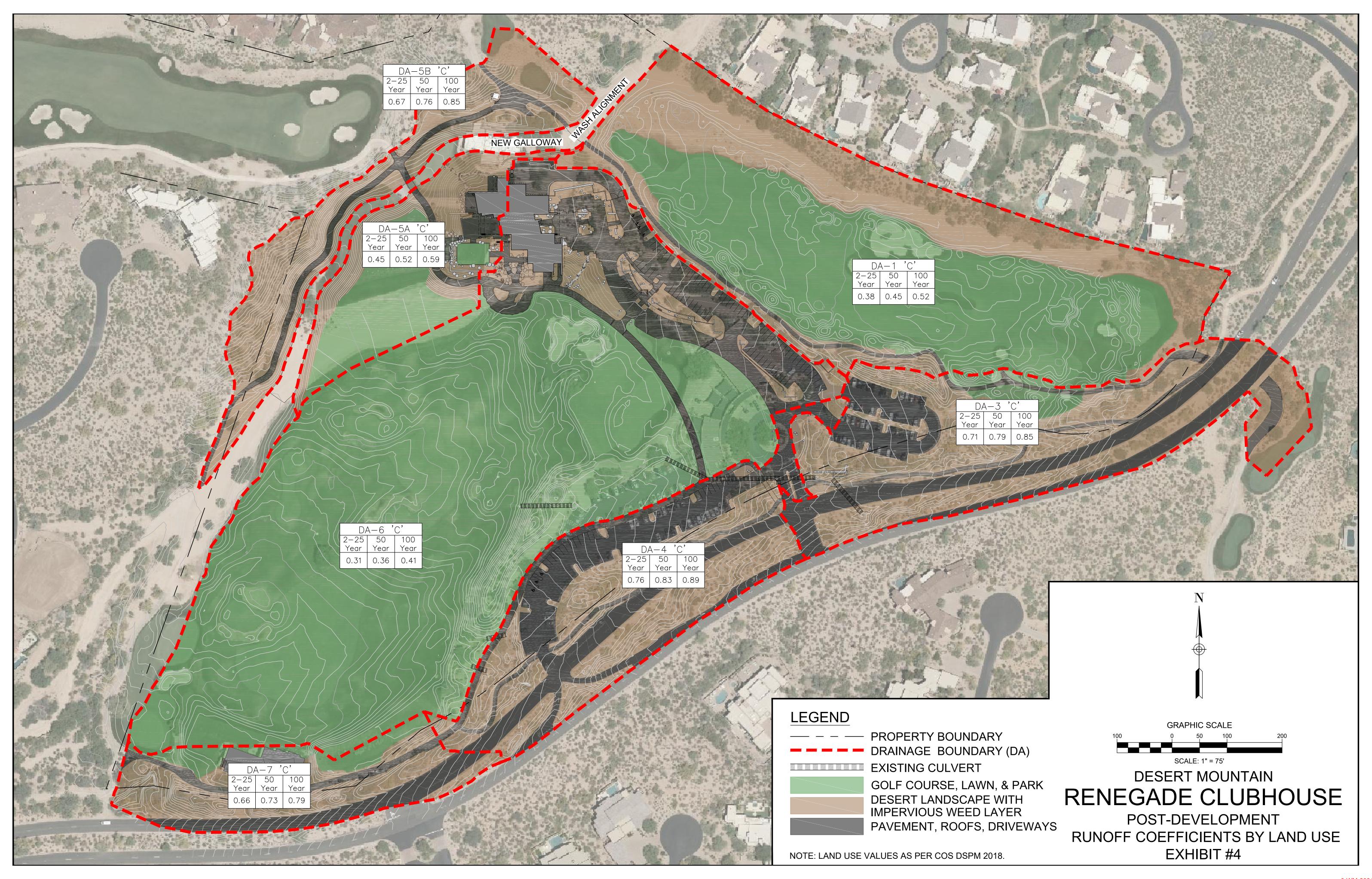


Appendix C Pre- and Post-Development Rational Method Exhibits









Appendix D Civil Grading Plans



C0.03 GRADING & DRAINAGE C0.04 GRADING & DRAINAGE C0.11 WASH IMPROVEMENTS C0.05 GRADING & DRAINAGE C0.12 WASH IMPROVEMENT DETAILS S5.01 SECTION AND DETAILS C0.06 GRADING & DRAINAGE C0.13 WASH IMPROVEMENT DETAILS

OWNER

DESERT MOUNTAIN CLUB, INC. 37700 N DESERT MOUNTAIN PARKWAY SCOTTSDALE, AZ 85262 PHONE: (480) 595-4090 EXT 1970 CONTACT NÁME: TODD BRUEN

ARCHITECT

DTJ DESIGN 3101 IRIS AVENUE, SUITE 130 BOULDER, CO 80303 PHONE: (303) 443-7533 CONTACT NAME: DAVID POPPLETON

CIVIL ENGINEER

GANNETT FLEMING, INC. 1900 - 3838 N CENTRAL AVENUE PHOENIX. AZ 85012 PHONE: (602) 553-8817 CONTACT NAME: BYRON DIXON

ADDRESS

37700 N DESERT MOUNTAIN PARKWAY SCOTTSDALE, AZ 85262

APN#

219-11-938F, 219-11-664P, 219-11-664B, & 219-11-663C

ZONING

64-51

OS ESL (HD) (OPEN SPACE) QS#

LANDFORM UPPER DESERT

BENCHMARK

CP1: BRASS CAP FLUSH AT THE CENTER OF CUL-DE-SAC OF RISING SUN DRIVE IN DESERT MOUNTAIN PHASE 1. UNIT THREE N= 1031845.998, E= 716764.180, Z=2878.21 NAVD'88

CP2: BRASS CAP FLUSH AT THE CENTERLINE OF INTERSECTION OF BAJADA DRIVE & 92ND/ PLACE IN DESERT MOUNTAIN PHASE 1, UNIT ONE N= 1028666.538, E= 710529.601, Z= 2762.60 NAVD'88

CP3: BRASS CAP FLUSH AT CENTER OF CUL-DE-SAC OF SKYLINE COURT IN DESERT MOUNTAIN PHASE 2, UNIT TWO N= 1030075.366, E= 713454.109, Z= 2776.22 NAVD'88

BENCHMARK CERTIFICATION: I HEREBY CERTIFY THAT ALL ELEVATIONS REPRESENTED ON THIS PLAN ARE BASED ON

NAVD 1988 AND MEET THE FEMA BENCHMARK

MAINTENANCE (BMM) CRITERIA.

LEGAL DESCRIPTION

THAT CERTAIN PORTION OF PARCEL NO. 1, (HOLES 1, 16, 17, 18 AND CLUBHOUSE ENVELOPE) OF RENEGADE GOLF COURSE AT DESERT MOUNTAIN DESCRIBED IN SPECIAL WARRANTY DEED RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF MARICOPA COUNTY, ARIZONA AS INSTRUMENT NUMBER 2011-0000703 AND BEING LOCATED IN SECTION 29 OF TOWNSHIP 6 NORTH, RANGE 5 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE EASTERN MOST CORNER OF LOT 14 OF DESERT MOUNTAIN PHASE I, UNIT ONE, A SUBDIVISION ACCORDING TO THE PLAT OF RECORD FOUND IN THE OFFICE OF THE COUNTY RECORDER OF MARICOPA COUNTY, ARIZONA IN BOOK 293 OF MAPS, PAGE 41;

THENCE ALONG THE NORTHERLY BOUNDARY OF SAID UNIT ONE, ALSO BEING THE NORTHERLY BOUNDARY OF SAID LOT 14, NORTH 77 DEGREES 13 MINUTES 30 SECONDS WEST A DISTANCE OF 174.11 FEET;

THENCE LEAVING SAID NORTHERLY BOUNDARY, NORTH 35 DEGREES 55 MINUTES 20 SECONDS EAST A DISTANCE OF 295.69 FEET TO AN ANGLE POINT ON THESOUTHERLY BOUNDARY OF LOT 13 OF DESERT MOUNTAIN PHASE II, UNIT TWENTY-EIGHT, (THE VILLAGE OF LOOKOUT RIDGE), A SUBDIVISION ACCORDING TO THE PLAT OF RECORD FOUND IN THE OFFICE OF THE COUNTY RECORDER OF MARICOPA COUNTY, ARIZONA IN BOOK 482 OF MAPS, PAGE 27:

THENCE ALONG THE SOUTHERLY BOUNDARY OF SAID UNIT TWENTY-EIGHT, ALSO BEING THE SOUTHERLY BOUNDARY OF SAID LOT 13 AND THEREAFTER LOT 12, TRACT D, LOTS 11 AND 10, TRACT C, LOTS 9 AND 8 AND TRACT B RESPECTIVELY THEREOF, TRAVERSING THE FOLLOWING COURSES AND DISTANCES:

NORTH 75 DEGREES 32 MINUTES 51 SECONDS EAST, 223.85 FEET

NORTH 32 DEGREES 02 MINUTES 58 SECONDS EAST, 178.98 FEET

SOUTH 67 DEGREES 12 MINUTES 58 SECONDS EAST, 235.37 FEET TO THE WESTERN MOST CORNER OF DESERT MOUNTAIN PHASE II. UNIT TWENTY-FIVE. (THE VILLAGE OF RENEGADE TRAIL). A SUBDIVISION ACCORDING TO THE PLAT OF RECORD FOUND IN THE OFFICE OF THE COUNTY RECORDER OF MARICOPA COUNTY, ARIZONA IN BOOK 450 OF MAPS, PAGE 32;

THENCE ALONG THE SOUTHWESTERLY BOUNDARY OF SAID UNIT TWENTY-FIVE, ALSO BEING THE SOUTHWESTERLY BOUNDARY OF TRACT G, LOTS 6, 7 AND 8, TRACT F, LOTS 9 AND 10, TRACT E, LOTS 16, 17 AND 18 AND TRACT D RESPECTIVELY THEREOF, TRAVERSING THE FOLLOWING COURSES AND DISTANCES:

SOUTH 56 DEGREES 02 MINUTES 35 SECONDS EAST, 365.86 FEET;

SOUTH 63 DEGREES 36 MINUTES 32 SECONDS EAST, 204.46 FEET

SOUTH 68 DEGREES 12 MINUTES 57 SECONDS EAST, 87.23 FEET;

SOUTH 71 DEGREES 18 MINUTES 50 SECONDS EAST, 314.72 FEET;

SOUTH 76 DEGREES 08 MINUTES 15 SECONDS EAST, 287.67 FEET TO A POINT OF INTERSECTION WITH THE NORTHWESTERLY RIGHT OF WAY LINE OF DESERT MOUNTAIN PARKWAY, A PRIVATE ACCESS-WAY ACCORDING TO THE DESERT MOUNTAIN PHASE I MAP OF DEDICATION, FOUND IN THE OFFICE OF THE COUNTY RECORDER OF MARICOPA COUNTY, ARIZONA IN BOOK 299 OF MAPS, PAGE 46;

THENCE ALONG SAID NORTHWESTERLY RIGHT OF WAY, SOUTH 30 DEGREES 24 MINUTES 29 SECONDS WEST A DISTANCE OF 93.02 FEET TO THE BEGINNING OF A NON-TANGENT CURVE, CONCAVE NORTHWESTERLY AND HAVING A RADIUS POINT WHICH BEARS NORTH 83 DEGREES 53 MINUTES 01 SECONDS WEST AT A DISTANCE OF 240.00 FEET; THENCE OUTHWESTERLY ALONG THE ARC OF SAID CURVE AND CONTINUING ALONG SAID NORTHWESTERLY RIGHT OF WAY THROUGH A CENTRAL ANGLE OF 89 DEGREES 41 MINUTES 28 SECONDS, A DISTANCE OF 375.70 FEET TO A POINT;

THENCE CONTINUING ALONG SAID NORTHWESTERLY RIGHT OF WAY, ON A LINE NOT TANGENT TO THE LAST MENTIONED CURVE, NORTH 79 DEGREES 00 MINUTES 59 SECONDS WEST, A DISTANCE OF 71.91 FEET;

THENCE CONTINUING ALONG SAID NORTHWESTERLY RIGHT OF WAY THE FOLLOWING TWO COURSES:

NORTH 81 DEGREES 07 MINUTES 10 SECONDS WEST, 77.87 FEET;

SOUTH 73 DEGREES 34 MINUTES 05 SECONDS WEST, 194.83 FEET TO THE BEGINNING OF A TANGENT CURVE, CONCAVE SOUTHEASTERLY AND HAVING A RADIUS OF 1336.78 FEET;

THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE AND CONTINUING ALONG SAID NORTHWESTERLY RIGHT OF WAY, THROUGH A CENTRAL ANGLE OF 22 DEGREES 15 MINUTES 38 SECONDS A DISTANCE OF 519.37 FEET;

THENCE ON A LINE TANGENT TO SAID CURVE AND CONTINUING ALONG SAID NORTHWESTERLY RIGHT OF WAY, SOUTH 51

DEGREES 18 MINUTES 26 SECONDS WEST, A DISTANCE OF 274.41 FEET TO THE BEGINNING OF A TANGENT CURVE, CONCAVE NORTHWESTERLY AND HAVING A RADIUS OF 884.19 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE AND CONTINUING ALONG SAID NORTHWESTERLY RIGHT OF

WAY, THROUGH A CENTRAL ANGLE OF 11 DEGREES 59 MINUTES 42 SECONDS, A DISTANCE OF 185.11 FEET TO A POINT; THENCE LEAVING SAID CURVE ON A NON-TANGENT LINE, CONTINUING ALONG SAID NORTHWESTERLY RIGHT OF WAY, TRAVERSING THE FOLLOWING COURSES AND DISTANCES:

SOUTH 49 DEGREES 15 MINUTES 21 SECONDS WEST, 155.21 FEET;

SOUTH 82 DEGREES 11 MINUTES 54 SECONDS WEST, 212.01 FEET;

NORTH 79 DEGREES 36 MINUTES 02 SECONDS WEST, 159.16 FEET;

SOUTH 86 DEGREES 27 MINUTES 03 SECONDS WEST, 87.66 FEET TO A POINT OF INTERSECTION WITH THE EASTERLY BOUNDARY OF SAID DESERT MOUNTAIN PHASE I, UNIT ONE;

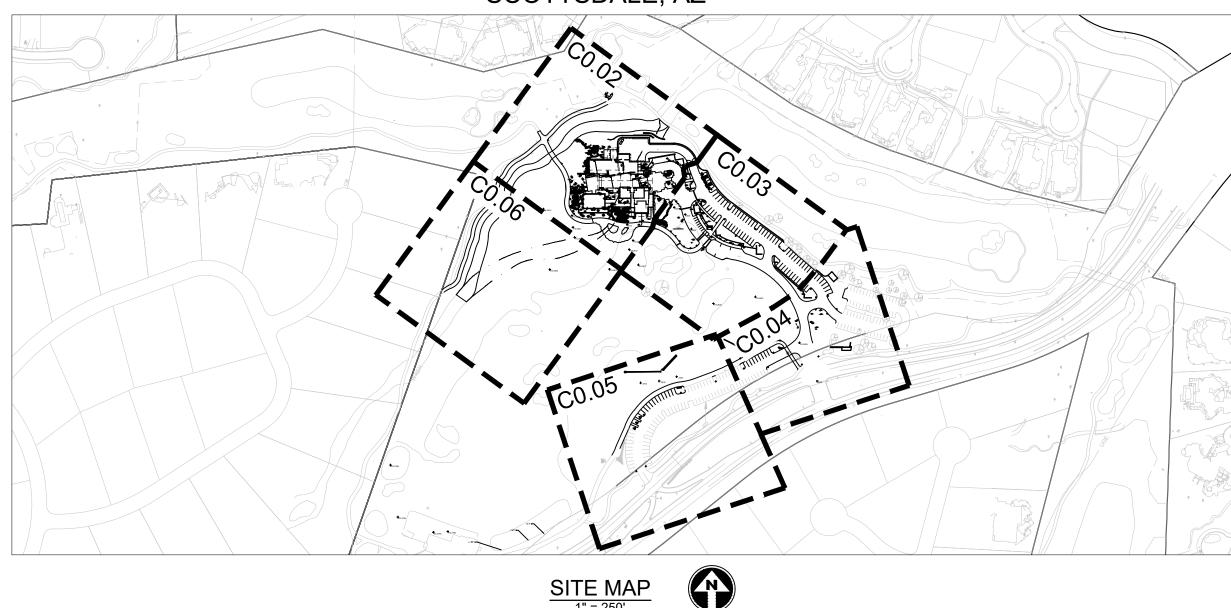
THENCE ALONG SAID EASTERLY BOUNDARY, ALSO BEING THE EASTERLY BOUNDARY OF LOTS 9 THROUGH 14 RESPECTIVELY THEREOF, NORTH 19 DEGREES 19 MINUTES 58 SECONDS EAST A DISTANCE OF 1105.06 FEET TO THE POINT OF BEGINNING.

CONTAINING 1,504,290.82 SQUARE FEET OR 34.534 ACRES MORE OR LESS.

GRADING AND DRAINAGE PLAN

RENEGADE CLUBHOUSE

SCOTTSDALE, AZ



GENERAL NOTES

- EXCAVATING, GRADING, AND FILL CONSTRUCTION SHALL BE IN ACCORDANCE WITH SECTION 1804 OF THE 2018 INTERNATIONAL BUILDING CODE (IBC). ALL OTHER CONSTRUCTION SHALL BE IN ACCORDANCE WITH MOST RECENT M.A.G. STANDARD DETAILS AND SPECIFICATIONS.
- 2. CUT AND FILL SLOPES SHALL HAVE ROUNDED GRADES TO BLEND INTO EXISTING NATURAL TERRAIN.
- 3. ALL EXPOSED RIP-RAP SHALL BE NATIVE STONE, INDIGENOUS TO THIS SITE.
- 4. SALVAGE OF NATIVE PLANTS IS BY OTHERS.
- 5. 5 PERCENT MINIMUM SLOPE AWAY FROM THE BUILDING FOR A MINIMUM OF 10 FEET UNLESS OTHERWISE NOTED.
- 6. UNLESS NOTED OTHERWISE WITH SPOT GRADES OR PROPOSED CONTOURS, ADJACENT GRADES TO IMPROVEMENTS SHALL BE REGRADED TO PRE-DEVELOPMENT CHARACTERISTICS.
- 7. PROVIDE SPLASH PADS AT ALL ROOF DRAINS.
- 8. GEOTECHNICAL ENGINEER TO REVIEW SLOPES STEEPER THAN 2:1 AND PROVIDE RECOMMENDATIONS FOR STABILIZATION IF NECESSARY
- 9. COORDINATE WATER AND SEWER BUILDING CONNECTION WITH ARCHITECT'S PLANS. TWO-WAY CLEANOUT REQUIRED ON SANITARY SEWER OUTSIDE OF STRUCTURE.
- 10. EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE ONLY AND ARE BASED ON UTILITY-PROVIDED QUARTER SECTION MAPS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING ALL UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR TO CONTACT PRIVATE UTILITIES FOR EXISTING UTILITY LOCATIONS. IF A PROPOSED IMPROVEMENT CANNOT BE CONSTRUCTED PER PLAN BECAUSE OF CONFLICTS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
- 11. RETAINING/SCREEN WALLS ARE DESIGNED BY OTHERS. WALLS TO INCLUDE WATERPROOFING AS WELL AS SUBSURFACE DRAINAGE CONSIDERATION OF RETAINED SOILS.
- 12. FLOOD PROOFING REQUIRED PER ARCHITECT'S SPECIFICATIONS WHEREVER FINISH FLOOR IS BELOW ADJACENT GROUND.
- 13. ALL SITE CONCRETE, INCLUDING ALL HEADWALLS & DRAINAGE STRUCTURES, SHALL BE INTEGRALLY COLORED TO BLEND WITH THE SURROUNDING NATURAL DESERT PER DESERT MOUNTAIN'S MASTER ENVIRONMENTAL CONCEPT PLAN (MEDCP) AMENDMENT. COLORS TO BE APPROVED BY DESERT MOUNTAIN PROPERTIES PRIOR TO INSTALLATION.
- 14. THIS PLAN DOES NOT INCLUDE TRAFFIC CONTROL AND SAFETY MEASURES. THE ENGINEER RECOMMENDS THAT THE OWNER PERFORM AN ANALYSIS OF TRAFFIC AND SAFETY MEASURES FOR IMPLEMENTATION PRIOR TO USE OF THE FACILITIES.
- 15. SLOPE ALL CONCRETE WALKWAYS AND PATIOS 1.5% AWAY FROM STRUCTURES OR WITH A CROSS-SLOPE FOR POSITIVE DRAINAGE. COORDINATE ALL SLOPES WITH THE ARCHITECT AND/OR
- 16. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE, VERIFY AND ACCEPT ALL CONSTRUCTION STAKES AND GRADES PRIOR TO STARTING CONSTRUCTION.
- 17. ALL RAMPS MUST MEET ADA ACCESSIBILITY GUIDELINES (ADAAG) STANDARDS, 2% MAX CROSS SLOPES AND 12:1 MAX LONGITUDINAL SLOPES. TRUNCATED DOMES AS DETECTABLE WARNINGS ARE REQUIRED ON ALL ON-SITE RAMPS PER ADAAG SECTION 4.7.7. TRUNCATED DOMES AS DETECTABLE WARNINGS ARE REQUIRED ON ALL ON-SITE SIDEWALKS THAT CROSS OR ADJOIN A VEHICULAR WAY PER ADAAG SECTION 4.29.5. SURFACE MATERIAL SHALL MEET ADAAG STANDARDS. THIS PLAN DOES NOT INCLUDE ADA SIGNAGE AND RAILINGS.
- 18. PRIOR TO PLACING FINAL ADA SURFACE MATERIAL (E.G., CONCRETE, ASPHALT CONCRETE, ETC.) CONTRACTOR SHALL CHECK AND VERIFY ALL FORMS AND/OR SUBGRADES FOR CONFORMANCE WITH ADA STANDARDS (GRADES, SLOPES, DIMENSIONS, ETC.).
- 19. ALL PRIVATE ON-SITE WATER AND SEWER FACILITIES SHALL BE INSTALLED IN ACCORDANCE WITH THE 2018 INTERNATIONAL PLUMBING CODE (IPC). ALL OTHER CONSTRUCTION SHALL BE IN ACCORDANCE WITH MOST RECENT M.A.G. STANDARD DETAILS AND SPECIFICATIONS.

NATURAL AREA OPEN SPACE (NAOS) AND

LIMITS-OF-CONSTRUCTION (LOC) PROTECTION PROGRAM

- 1. NO BUILDING, GRADING, OR CONSTRUCTION ACTIVITY SHALL ENCROACH INTO AREAS DESIGNATED AS NAOS, OR OUTSIDE THE DESIGNATED CONSTRUCTION ENVELOPE.
- 2. ALL NAOS AND AREA OUTSIDE OF THE LOC SHALL BE PROTECTED FROM DAMAGE PRIOR TO, AND DURING CONSTRUCTION BY THE FOLLOW METHODS:
- A. A REGISTERED LAND SURVEYOR SHALL STAKE ALL NAOS AND LOC DISTURBANCE BASED ON THIS EXHIBIT B. ± THREE (3) FOOT TALL STEEL REBAR, OR CITY OF SCOTTSDALE INSPECTION SERVICES APPROVED SIMILAR, SHALL BE SET ALONG THE NAOS AND LOC, AND CONNECTED WITH GOLD ROPING BY THE CONTRACTOR PRIOR TO ANY CLEARING OR GRADING.
- C. ALL CACTUS SUBJECT TO THE CITY OF SCOTTSDALE'S NATIVE PLANT ORDINANCE DIRECTLY ADJACENT, WITHIN TWO FEET, OF THE NAOS AND LOC LINE SHALL BE FENCED WITH WIRE D. THE STAKING, ROPING, AND FENCING SHALL BE MAINTAINED INTACT BY THE CONTRACTOR DURING THE DURATION OF THE CONSTRUCTION ACTIVITY.
- THE CONTRACTOR SHALL REMOVE STAKING, ROPING, AND FENCING AFTER RECEIPT OF THE LETTER OF ACCEPTANCE FROM THE CITY OF SCOTTSDALE FOR ALL CONSTRUCTION WORK.

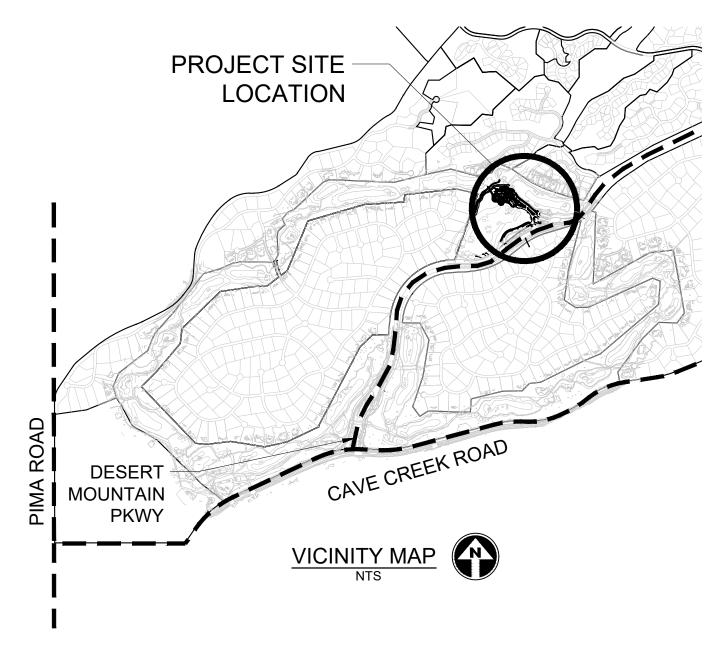
CITY OF SCOTTSDALE GENERAL NOTES

UNDERGROUND UTILITY LINES IS IDENTIFIED FOR THE PROJECT.

- 1. ALL CONSTRUCTION IN THE PUBLIC RIGHT-OF WAY OR IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION AS AMENDED BY THE LATEST VERSION OF THE CITY OF SCOTTSDALE SUPPLEMENTAL STANDARD SPECIFICATIONS AND SUPPLEMENTAL STANDARD DETAILS. IF THERE IS A CONFLICT, THE CITY'S SUPPLEMENTAL STANDARD DETAILS WILL GOVERN.
- THE CITY ONLY APPROVES THE SCOPE, NOT THE DETAIL, OF ENGINEERING DESIGNS; THEREFORE, IF CONSTRUCTION QUANTITIES ARE SHOWN ON THESE PLANS, THEY ARE NOT VERIFIED BY
- 3. THE APPROVAL OF PLANS IS VALID FOR SIX (6) MONTHS. IF A RIGHT-OF-WAY PERMIT FOR THE CONSTRUCTION HAS NOT BEEN ISSUED WITHIN SIX MONTHS, THE PLANS MUST BE RESUBMITTED TO THE CITY FOR REAPPROVAL.

4. A PUBLIC WORKS INSPECTOR WILL INSPECT ALL WORKS WITHIN THE CITY OF SCOTTSDALE RIGHT-OF-WAY AND IN EASEMENTS. NOTIFY INSPECTION SERVICES 24 HOURS PRIOR TO BEGINNING

- 5. WHENEVER EXCAVATION IS NECESSARY, CALL THE BLUE STAKE CENTER, 811, TWO WORKING DAYS BEFORE EXCAVATION BEGINS. THE CENTER WILL SEE THAT THE LOCATION OF THE
- 6. RIGHT-OF-WAY PERMITS ARE REQUIRED FOR ALL WORK IN PUBLIC RIGHT-OF -WAY AND EASEMENTS GRANTED FOR PUBLIC PURPOSES. A RIGHT-OF-WAY PERMIT WILL BE ISSUED BY THE CITY ONLY AFTER THE REGISTRANT HAS PAID A BASE FEE PLUS A FEE FOR INSPECTION SERVICES. COPIES OF ALL PERMITS MUST BE RETAINED ON-SITE AND BE AVAILABLE FOR INSPECTION AT ALL TIMES. FAILURE TO PRODUCE THE REQUIRED PERMITS WILL RESULT IN IMMEDIATE SUSPENSION OF ALL WORK UNTIL THE PROPER PERMIT DOCUMENTATION IS OBTAINED.
- 7. ALL EXCAVATION AND GRADING THAT IS NOT IN THE PUBLIC RIGHTS-OF-WAY OR NOT IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO APPENDIX J, GRADING, OF THE LATEST EDITION OF THE INTERNATIONAL BUILDING CODE. A PERMIT FOR THIS GRADING MUST BE SECURED FROM THE CITY FOR A FEE ESTABLISHED BY CITY.



LEGEND ABBREVIATIONS BACK OF CURB RIGHT OF WAY/PROPERTY **BOTTOM OF EXPOSED WALL BOUNDARY** BW CONCRETE SURFACE LIMIT OF CONSTRUCTION DIAMETER

— EASEMENT LINE EXISTING PAVEMENT NATURAL OPEN **EXISTING** SPACE AREA (NAOS) FACE OF CURB **CONTOUR - MAJOR** FINISHED GROUND SURFACE FIRE LINE **CONTOUR - MINOR** INVERT PROPOSED WATER LOW POINT NATURAL AREA OPEN SPACE PROPOSED FIRE LINE OVERFLOW ——— SS ——— PROPOSED FIRE LINE PAVEMENT SLOPE EASEMENT PROPOSED STORM DRAIN SEWER LINE EASEMENT FIRE LANE TOP OF CURB TOP OF FOOTING EXIST. CONTOUR - MAJOR TOP OF GRATE TOP OF WALL EXIST. CONTOUR - MINOR UNDERGROUND ELECTRIC EXIST. SANITARY

SEWER LINE

WATER SURFACE ELEVATION EXIST. WATER LINE EXIST. FIRE LINE Complement Arabanama 2011 and Company from Complement EXIST. GAS aereesse milised mov estoded exemple multison EXIST. FIBER E EXIST. ELECTRIC EXIST, STORM DRAIN

FINISHED FLOOR ELEVATION

CIVIL APPROVAL												
REVIEW AND RECOMMENDED APPROVAL BY:												
PAVING		TRAFFIC										
G & D		PLANNING										
W & S		FIRE										
RET. WALLS												
	•											
ENGINEERING	COORDINATION MGR. (OR I	DESIGNEE)	DATE									

MAINTENANCE NOTE

THE PROPERTY OWNER IS RESPONSIBLE FOR MAINTAINING ALL DRAINAGE IMPROVEMENTS. REGULAR INSPECTION SHOULD BE PERFORMED IN ADDITION TO INSPECTING ALL DRAINAGE IMPROVEMENTS AFTER EACH STORM EVENT. THE PROPERTY OWNER IS TO CLEAN OUT OR REPAIR ANY DAMAGED IMPROVEMENTS PROMPTLY.

FLOOD INSURANCE RATE MAP (FIRM) INFORMATION													
COMMUNITY PANEL NO. SUFFIX DATE OF FIRM FIRM BASE FLOOD ELEV.													
NUMBER	NUMBER PANEL DATE SUFFIX (INDEX DATE) ZONE												
045012	0903	L	10/16/2013	D	N.A.								

ENGINEERS CERTIFICATION

THE LOWEST FLOOR ELEVATION(S) AND/OR FLOOD PROOFING ELEVATION(S) ON THIS PLAN ARE SUFFICIENTLY HIGH TO PROVIDE PROTECTION FROM FLOODING CAUSED BY A 100-YEAR STORM, AND ARE IN ACCORDANCE WITH SCOTTSDALE REVISED CODE, CHAPTER 37 - FLOODPLAIN AND STORMWATER REGULATIONS.

NO CONFLICT SIGNATURE BLOCK											
UTILITY UTILITY NAME OF COMPANY TELEPHONE DATE											
COMPANY REPRESENTATIVE NUMBER SIGNED											
WATER	SCOTTSDALE										
SANITARY SEWER	SCOTTSDALE										
ELECTRIC	APS										
TELEPHONE	CENTURY LINK										
NATURAL GAS	SOUTHWEST GAS										
CABLE TV COX COMM.											
ENGINEER'S CERTIFICA	ATION			·							

I, BYRON DIXON, AS THE ENGINEER-OF-RECORD FOR DEVELOPMENT, HEREBY CERTIFY THAT ALL UTILITY COMPANIES LISTED ABOVE HAVE BEEN PROVIDED FINAL IMPROVEMENT PLANS FOR REVIEW, AND THAT ALL CONFLICTS IDENTIFIED BY THE UTILITIES HAVE BEEN RESOLVED. IN ADDITION, "NO CONFLICT" FORMS HAVE BEEN OBTAINED FROM EACH UTILITY COMPANY AND ARE INCLUDED IN THIS SUBMITTAL.

SIGNATURE

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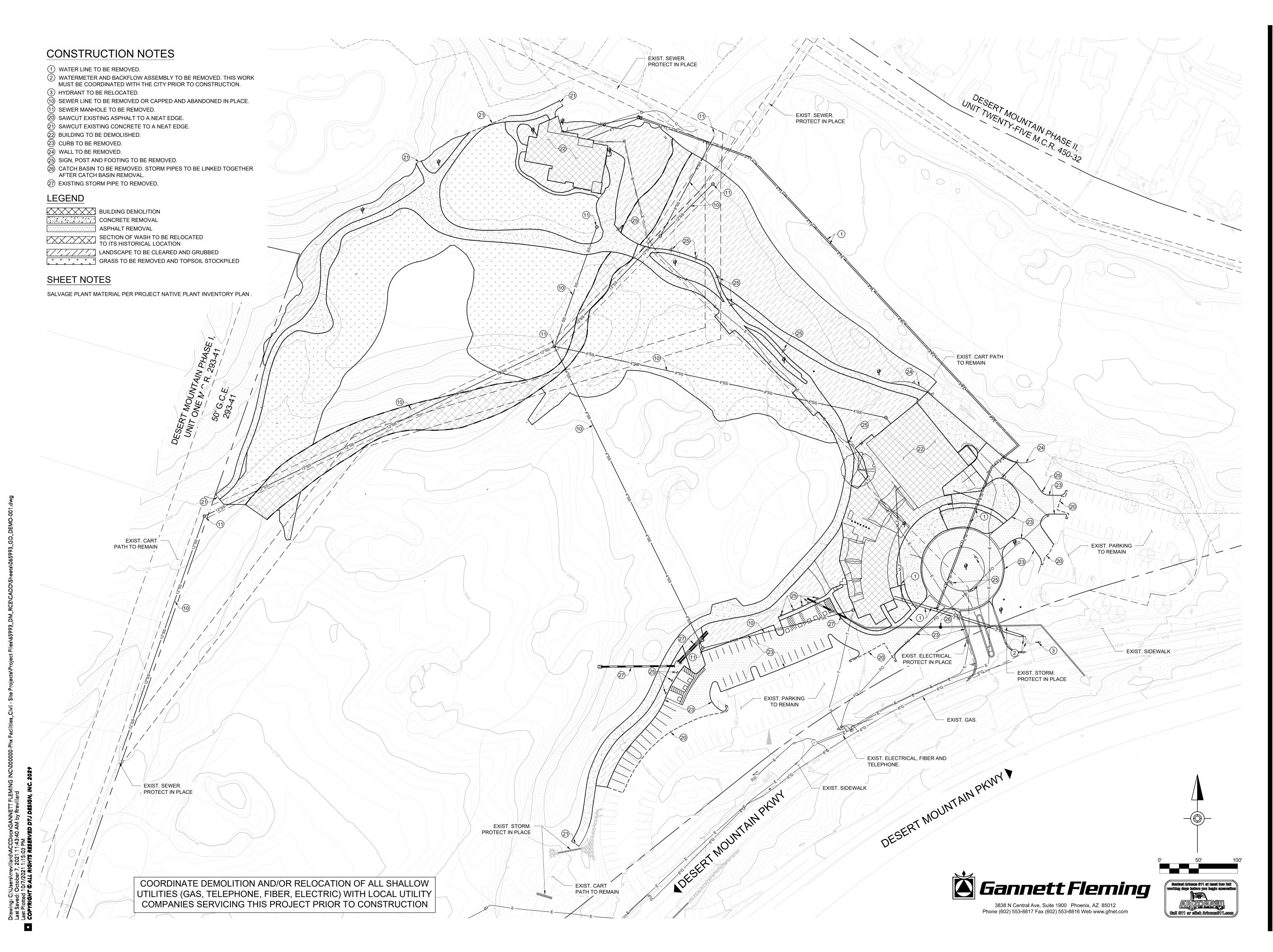
NT REVIEW BOARD

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15-DR-2021_V2 R. REVILLARD PROJECT NO.: 2019001.20 REVISIONS:

CIVIL COVER

DATE



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R. REVILLARD

CHECKED BY:

B. DIXON

PROJECT NO.:

2019001.20

ISSUE DATE:

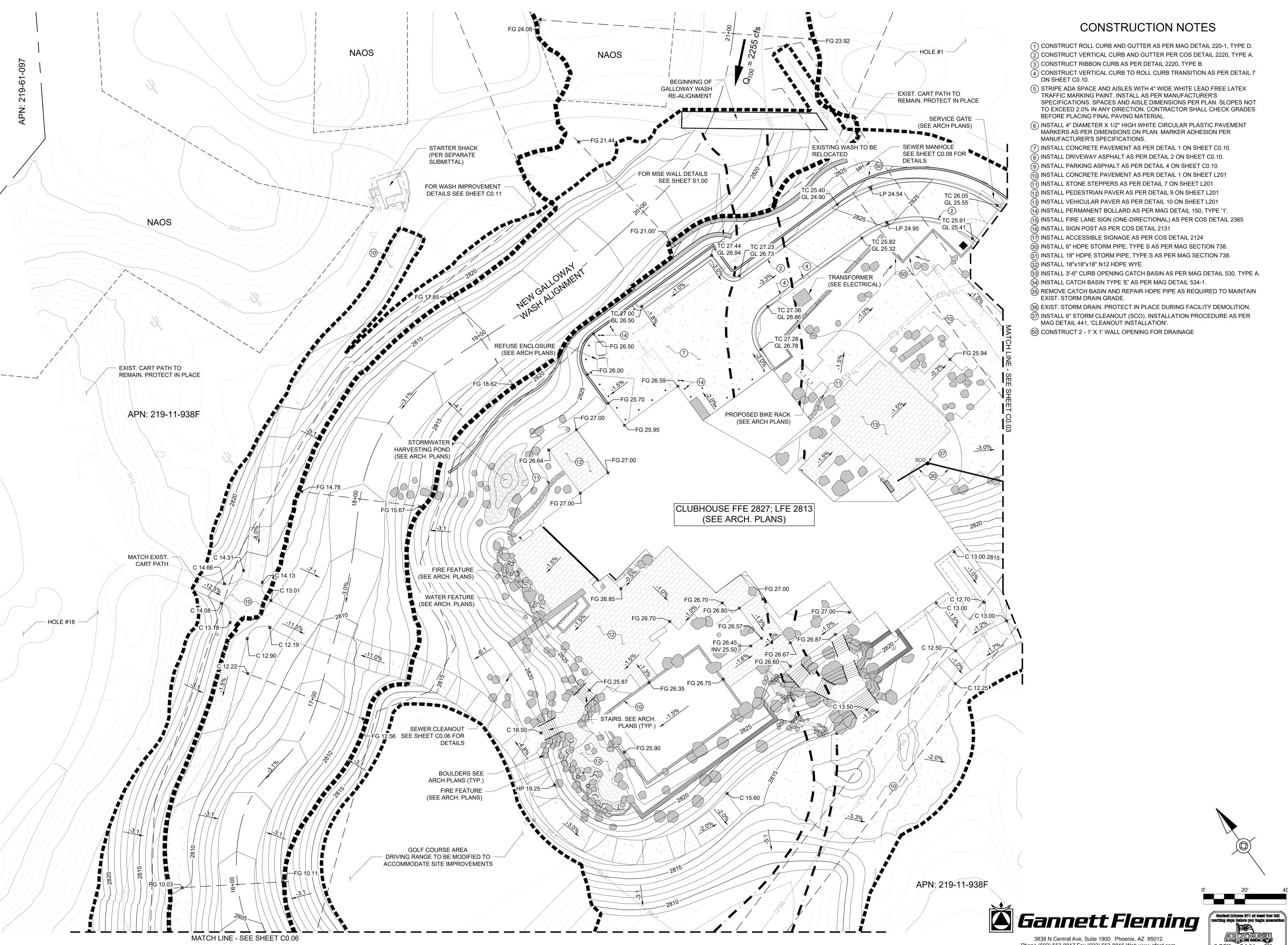
10/07/2021

REVISIONS:

HEET TITLE:

DEMOLITION PLAN

SHEET NUMBER:



MATCH LINE - SEE SHEET C0.06

(1) CONSTRUCT ROLL CURB AND GUTTER AS PER MAG DETAIL 220-1, TYPE D. CONSTRUCT VERTICAL CURB AND GUTTER PER COS DETAIL 2220, TYPE A.

(4) CONSTRUCT VERTICAL CURB TO ROLL CURB TRANSITION AS PER DETAIL 7

(5) STRIPE ADA SPACE AND AISLES WITH 4" WIDE WHITE LEAD FREE LATEX TRAFFIC MARKING PAINT. INSTALL AS PER MANUFACTURER'S SPECIFICATIONS. SPACES AND AISLE DIMENSIONS PER PLAN. SLOPES NOT

(6) INSTALL 4" DIAMETER X 1/2" HIGH WHITE CIRCULAR PLASTIC PAVEMENT MARKERS AS PER DIMENSIONS ON PLAN. MARKER ADHESION PER

(7) INSTALL CONCRETE PAVEMENT AS PER DETAIL 1 ON SHEET C0.10.

) INSTALL PARKING ASPHALT AS PER DETAIL 4 ON SHEET C0.10.

) INSTALL STONE STEPPERS AS PER DETAIL 7 ON SHEET L201

INSTALL PEDESTRIAN PAVER AS PER DETAIL 9 ON SHEET L201

14) INSTALL PERMANENT BOLLARD AS PER MAG DETAIL 150, TYPE '1'.

(30) INSTALL 6" HDPE STORM PIPE, TYPE S AS PER MAG SECTION 738.

(35) REMOVE CATCH BASIN AND REPAIR HDPE PIPE AS REQUIRED TO MAINTAIN

(37) INSTALL 6" STORM CLEANOUT (SCO). INSTALLATION PROCEDURE AS PER

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R. REVILLARD B. DIXON PROJECT NO.: 2019001.20 REVISIONS:

CIVIL GRADING PLAN

Call 811 or click Artzona811.com

- 1 CONSTRUCT ROLL CURB AND GUTTER AS PER MAG DETAIL 220-1, TYPE D. 2 CONSTRUCT VERTICAL CURB AND GUTTER PER COS DETAIL 2220, TYPE A.
- 3 CONSTRUCT RIBBON CURB AS PER DETAIL 2220, TYPE B.
 4 CONSTRUCT VERTICAL CURB TO ROLL CURB TRANSITION AS PER DETAIL 7
- ON SHEET C0.10.

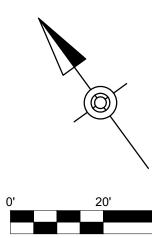
 (5) STRIPE ADA SPACE AND AISLES WITH 4" WIDE WHITE LEAD FREE LATEX TRAFFIC MARKING PAINT. INSTALL AS PER MANUFACTURER'S SPECIFICATIONS. SPACES AND AISLE DIMENSIONS PER PLAN. SLOPES NOT

TO EXCEED 2.0% IN ANY DIRECTION. CONTRACTOR SHALL CHECK GRADES

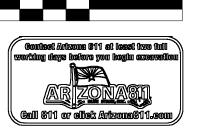
- BEFORE PLACING FINAL PAVING MATERIAL.

 (6) INSTALL 4" DIAMETER X 1/2" HIGH WHITE CIRCULAR PLASTIC PAVEMENT MARKERS AS PER DIMENSIONS ON PLAN. MARKER ADHESION PER MANUFACTURER'S SPECIFICATIONS.
- (7) INSTALL CONCRETE PAVEMENT AS PER DETAIL 1 ON SHEET C0.10.
- 3) INSTALL DRIVEWAY ASPHALT AS PER DETAIL 2 ON SHEET CO.10.
-) INSTALL PARKING ASPHALT AS PER DETAIL 4 ON SHEET C0.10.

 (i) INSTALL CONCRETE PAVEMENT AS PER DETAIL 1 ON SHEET L201
- 1) INSTALL STONE STEPPERS AS PER DETAIL 7 ON SHEET L201
- 2) INSTALL PEDESTRIAN PAVER AS PER DETAIL 9 ON SHEET L201
- 13) INSTALL VEHICULAR PAVER AS PER DETAIL 10 ON SHEET L201 14) INSTALL PERMANENT BOLLARD AS PER MAG DETAIL 150, TYPE '1'.
- 13) INSTALL FERMANENT BOLLARD AS FER MAG DETAIL 150, TYPE T. 15) INSTALL FIRE LANE SIGN (ONE-DIRECTIONAL) AS PER COS DETAIL 2365
- 16) INSTALL SIGN POST AS PER COS DETAIL 2131
- (17) INSTALL ACCESSIBLE SIGNAGE AS PER COS DETAIL 2124
- 30) INSTALL 6" HDPE STORM PIPE, TYPE S AS PER MAG SECTION 738.
 31) INSTALL 18" HDPE STORM PIPE, TYPE S AS PER MAG SECTION 738.
- 32) INSTALL 18"x18"x18" N12 HDPE WYE.
- (33) INSTALL 3'-6" CURB OPENING CATCH BASIN AS PER MAG DETAIL 530, TYPE A.
- (34) INSTALL CATCH BASIN TYPE 'E' AS PER MAG DETAIL 534-1.
 (35) REMOVE CATCH BASIN AND REPAIR HDPE PIPE AS REQUIRED TO MAINTAIN
- EXIST. STORM DRAIN GRADE.
- (36) EXIST. STORM DRAIN. PROTECT IN PLACE DURING FACILITY DEMOLITION. (37) INSTALL 6" STORM CLEANOUT (SCO). INSTALLATION PROCEDURE AS PER
- (37) INSTALL 6" STORM CLEANOUT (SCO). INSTALLATION PROCEDURE AS PER MAG DETAIL 441, 'CLEANOUT INSTALLATION'.
- (50) CONSTRUCT 2 1' X 1' WALL OPENING FOR DRAINAGE









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CHECKED BY: B. DIXON
PROJECT NO.: 2019001.20
ISSUE DATE: 10/07/2021
REVISIONS:

CIVIL GRADING

HEET TITLE:

- (1) CONSTRUCT ROLL CURB AND GUTTER AS PER MAG DETAIL 220-1, TYPE D. 2) CONSTRUCT VERTICAL CURB AND GUTTER PER COS DETAIL 2220, TYPE A.
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- (7) INSTALL CONCRETE PAVEMENT AS PER DETAIL 1 ON SHEET C0.10.
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- 100 INSTALL CONCRETE PAVEMENT AS PER DETAIL 1 ON SHEET L201
- 11) INSTALL STONE STEPPERS AS PER DETAIL 7 ON SHEET L201
- 12) INSTALL PEDESTRIAN PAVER AS PER DETAIL 9 ON SHEET L201
- 13) INSTALL VEHICULAR PAVER AS PER DETAIL 10 ON SHEET L201 (14) INSTALL PERMANENT BOLLARD AS PER MAG DETAIL 150, TYPE '1'.
- (15) INSTALL FIRE LANE SIGN (ONE-DIRECTIONAL) AS PER COS DETAIL 2365
- 16) INSTALL SIGN POST AS PER COS DETAIL 2131
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- EXIST. STORM DRAIN GRADE.
- (36) EXIST. STORM DRAIN. PROTECT IN PLACE DURING FACILITY DEMOLITION. (37) INSTALL 6" STORM CLEANOUT (SCO). INSTALLATION PROCEDURE AS PER MAG DETAIL 441, CLEANOUT INSTALLATION.
- (38) INSTALL CONCRETE HEADWALL.
- (50) CONSTRUCT 2 1' X 1' WALL OPENING FOR DRAINAGE



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PLAN

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- (1) CONSTRUCT ROLL CURB AND GUTTER AS PER MAG DETAIL 220-1, TYPE D. 2) CONSTRUCT VERTICAL CURB AND GUTTER PER COS DETAIL 2220, TYPE A.
- (3) CONSTRUCT RIBBON CURB AS PER DETAIL 2220, TYPE B. (4) CONSTRUCT VERTICAL CURB TO ROLL CURB TRANSITION AS PER DETAIL 7
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- (6) INSTALL 4" DIAMETER X 1/2" HIGH WHITE CIRCULAR PLASTIC PAVEMENT MARKERS AS PER DIMENSIONS ON PLAN. MARKER ADHESION PER MANUFACTURER'S SPECIFICATIONS.
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- MAG DETAIL 441, 'CLEANOUT INSTALLATION'.
- (50) CONSTRUCT 2 1' X 1' WALL OPENING FOR DRAINAGE



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> 15-DR-2021_V2 B. DIXON

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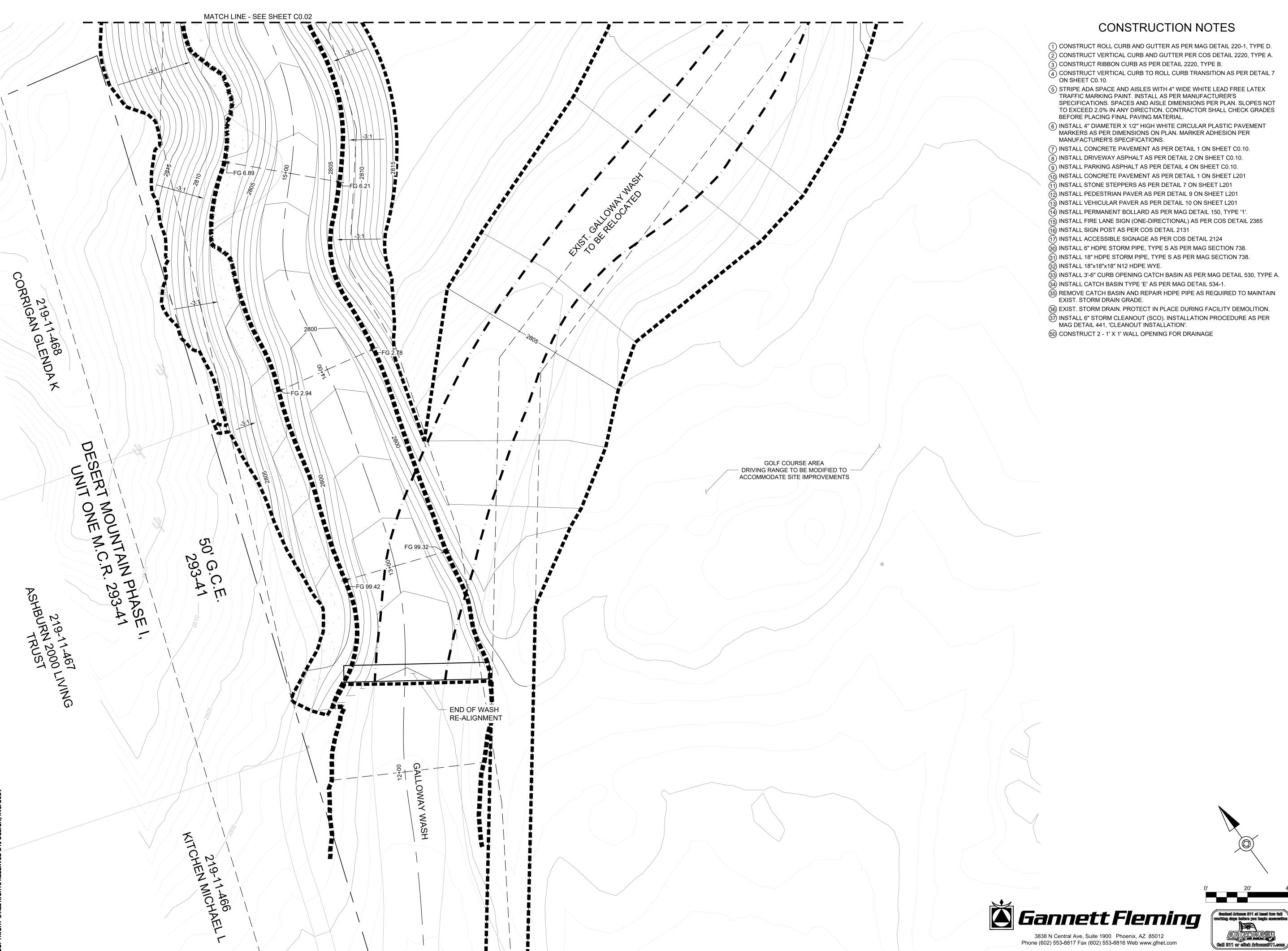
CIVIL GRADING PLAN

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Contact Arizona 211 at least two full working days before you begin expansion

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Call 211 or eliek Arizona 211.0000



- (1) CONSTRUCT ROLL CURB AND GUTTER AS PER MAG DETAIL 220-1, TYPE D. 2) CONSTRUCT VERTICAL CURB AND GUTTER PER COS DETAIL 2220, TYPE A.
- (4) CONSTRUCT VERTICAL CURB TO ROLL CURB TRANSITION AS PER DETAIL 7
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- (35) REMOVE CATCH BASIN AND REPAIR HDPE PIPE AS REQUIRED TO MAINTAIN
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CIVIL GRADING

— PROPOSED FINISHED GRADE — — — EXISTING GRADE

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CHECKED BY:	B. DIXON
PROJECT NO.:	2019001.20
ISSUE DATE:	10/07/202
REVISIONS:	

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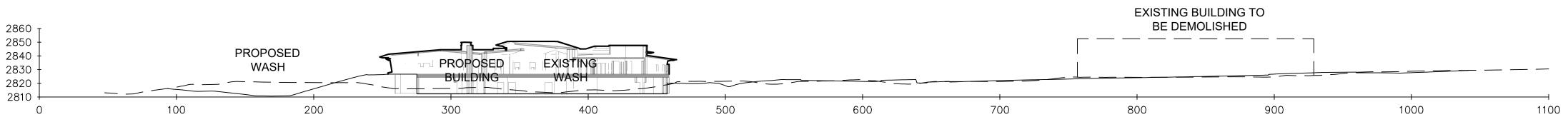
SECTIONS

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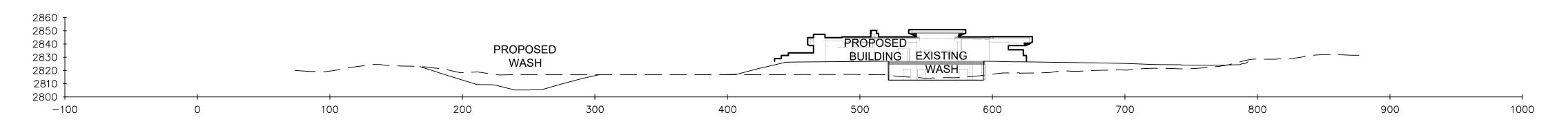
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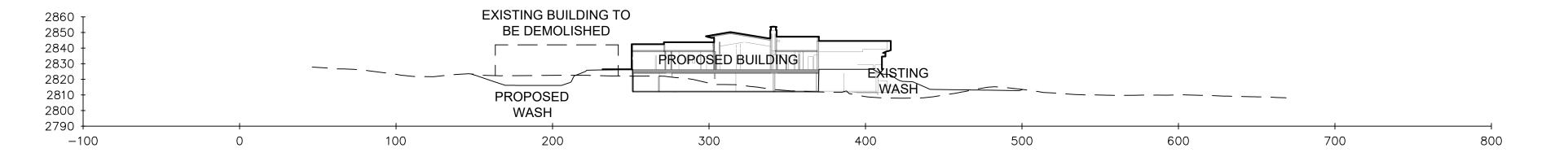
NORTHWEST/ SOUTH EAST - SECTION 1



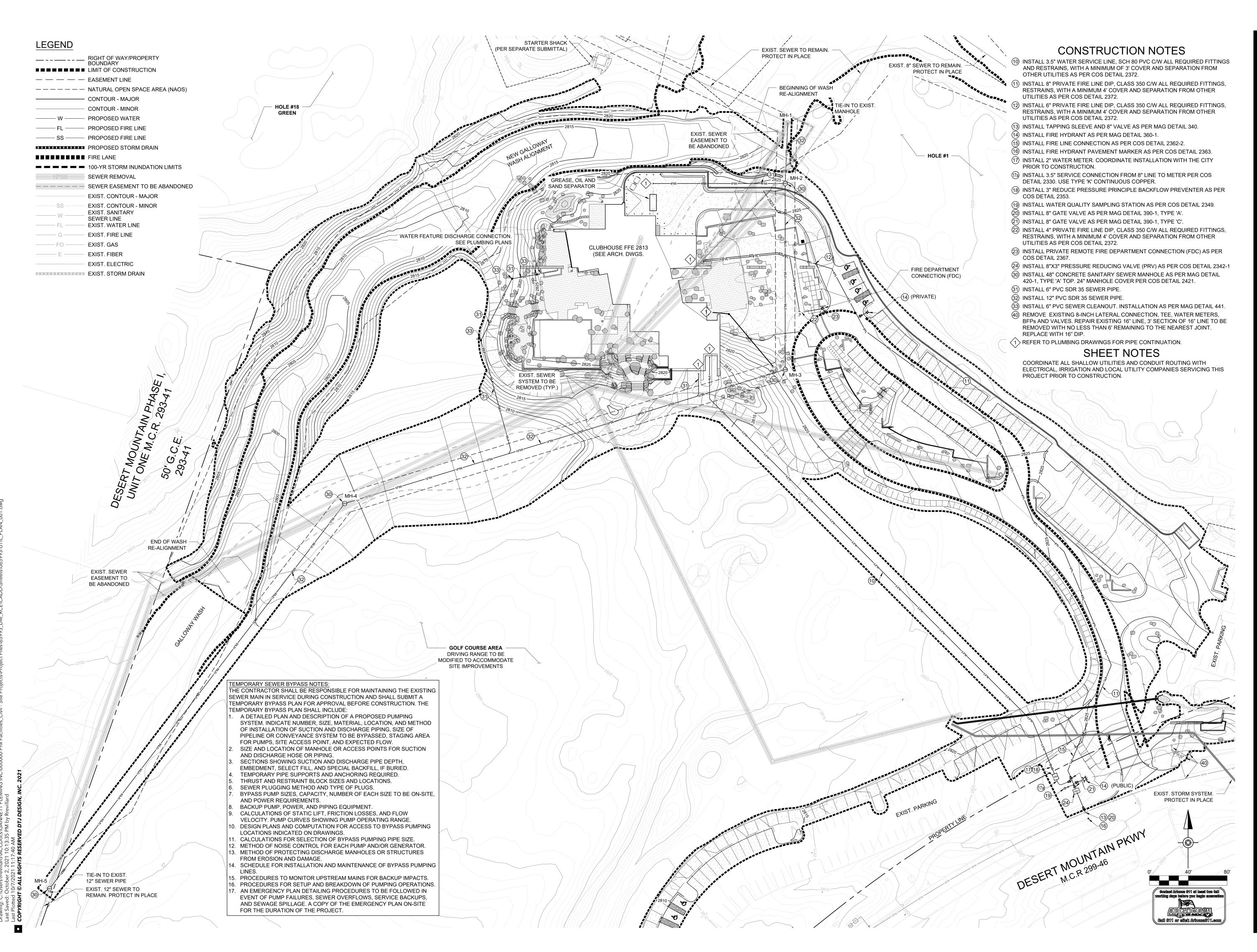
WEST/ EAST - SECTION 2



NORTH/ SOUTH - SECTION 3



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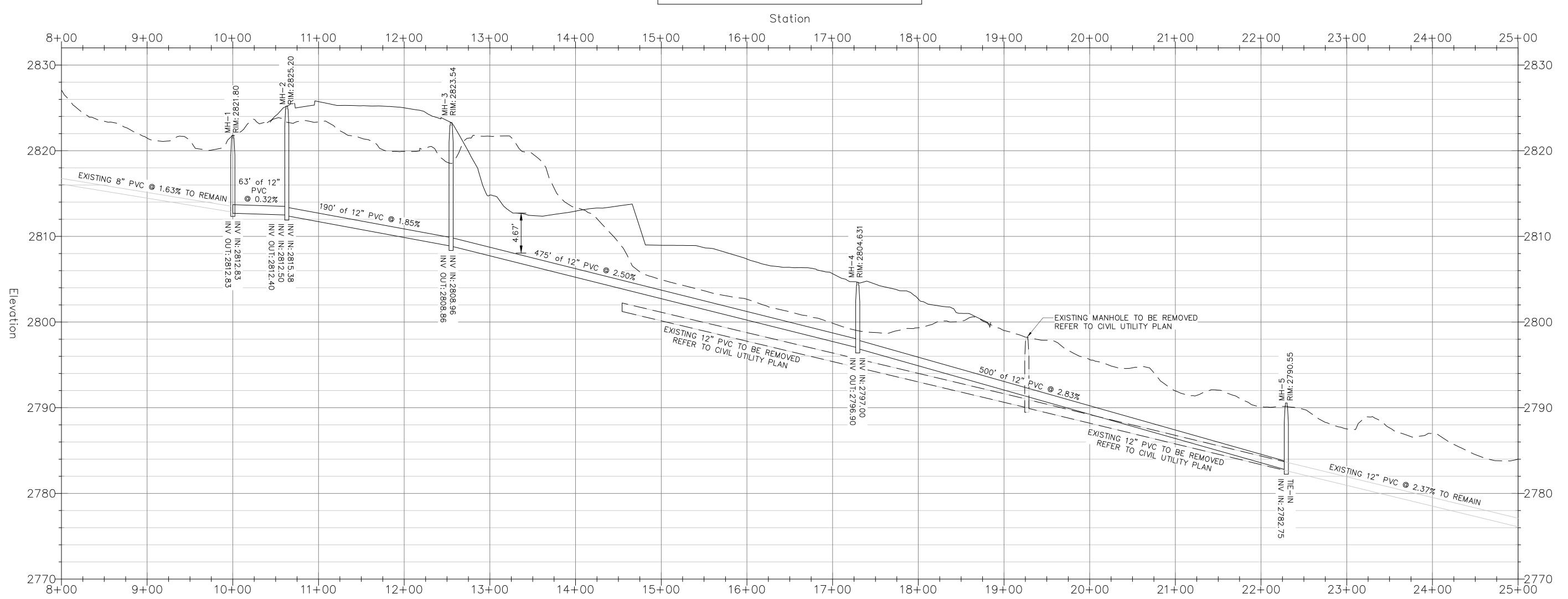
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> WATER AND SEWER PLAN

PROJECT NO.:

ISSUE DATE:

PR-Sewer-12 in PROFILE





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 2019001.20

 ISSUE DATE:
 10/07/2021

REVISIONS:

EET TITLE:

SEWER PROFILE

SHEET NUMBER:



1 CONCRETE DRIVEWAY SECTION

NTS

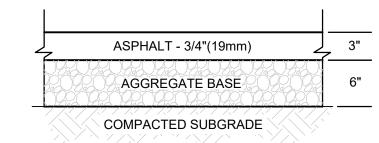
ASPHALT - 1/2" (13mm) 2"

AGGREGATE BASE 4"

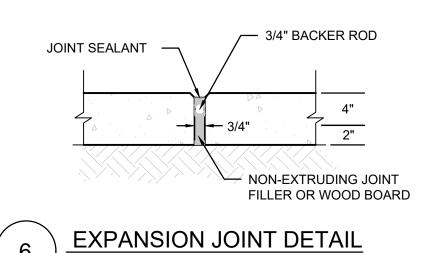
COMPACTED SUBGRADE

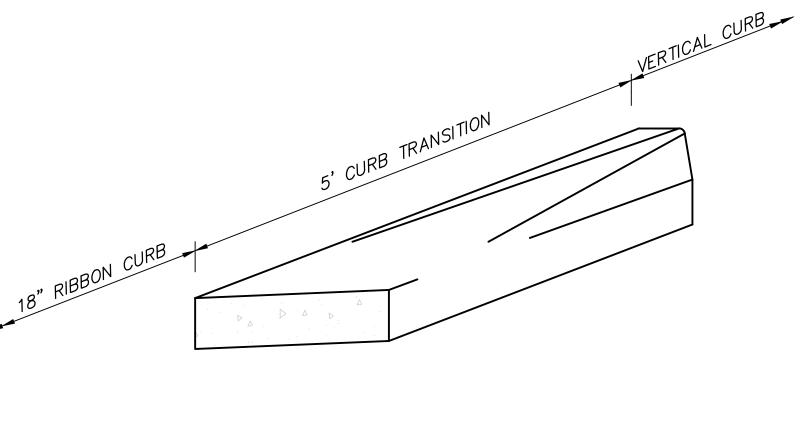
4 ASPHALT PARKING SECTION

NTS



2 ASPHALT DRIVEWAY SECTION NTS





7 5' CURB TRANSITION (VERTICAL TO RIBBON)

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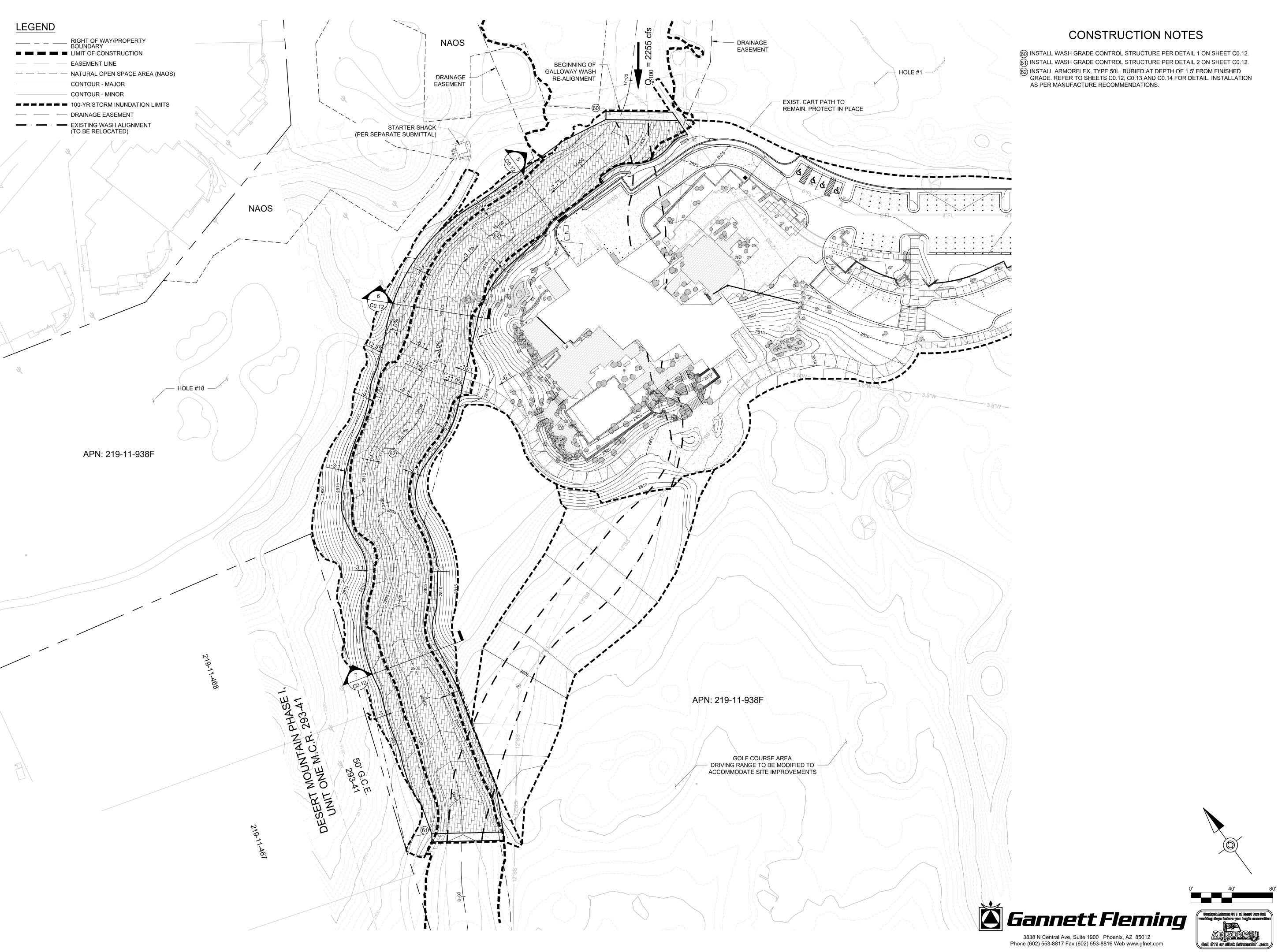
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 2019001.20

 ISSUE DATE:
 10/07/2021

REVISIONS:

CIVIL DETAILS

SHEET NUMBER:



(60) INSTALL WASH GRADE CONTROL STRUCTURE PER DETAIL 1 ON SHEET C0.12. 1) INSTALL WASH GRADE CONTROL STRUCTURE PER DETAIL 2 ON SHEET C0.12.

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WASH **IMPROVEMENTS**

7 WASH CROSS-SECTION

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 PROJECT NO.:
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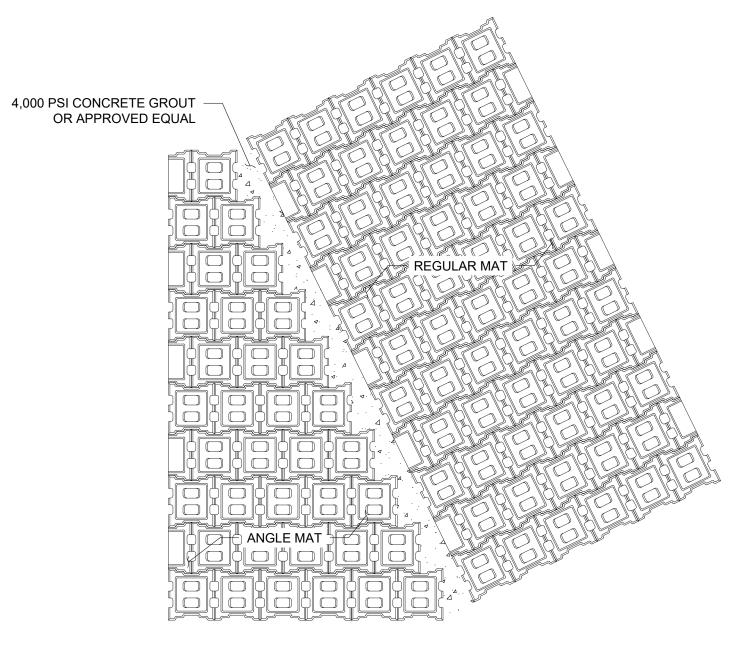
ISSUE DATE: 10/07/2021
REVISIONS:

WASH
IMPROVEMENTS
DETAILS

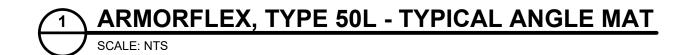
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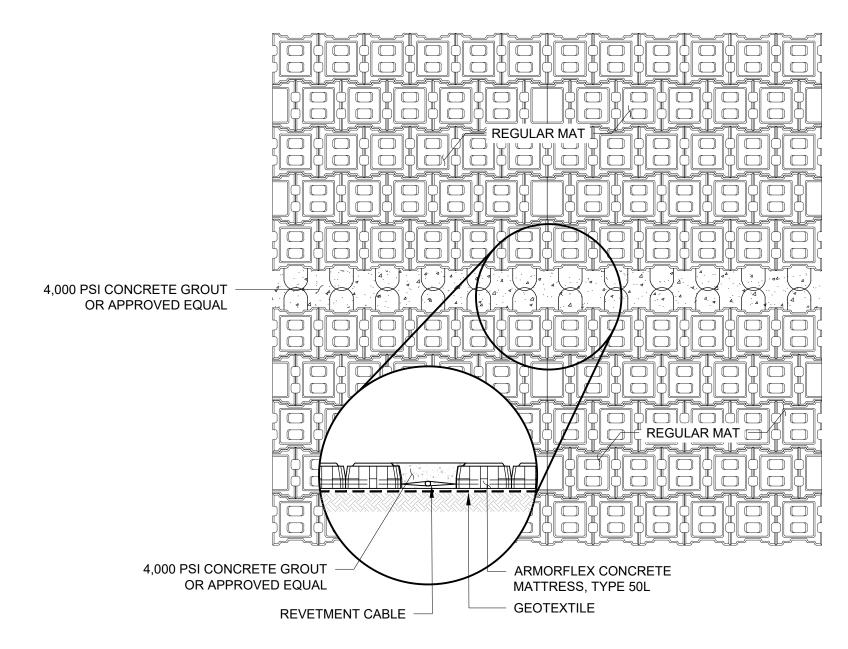
C0.12

9 ARMORFLEX, TYPE 50L - TYPICAL MAT



NOTE:
ANGLE MATS WILL BE CONSTRUCTED BY OMITTING THE REQUIRED UNITS TO MATCH PLAN LAYOUT
CONFIGURATION. CONTRACTOR TO SUBMIT LAYOUT FOR APPROVAL PRIOR TO CONSTRUCTION.





2 ARMORFLEX, TYPE 50L - TYPICAL MAT TO MAT
SCALE: NTS

Last Saved: September 30, 2021 7:47:59 PM by Rrevillard
Last Plotted 9/30/2021 9:51:52 PM

ARTICULATED CONCRETE BLOCK (ACB) NOTES:

- 1. ACB INSTALLATION AND MATERIALS SHALL CONFORM TO SPECIFICATION SECTION: "ARTICULATED CONCRETE BLOCK SYSTEMS".
- 2. PRIMARY REQUIREMENTS ARE OF THE ACB UNITS, AS DETAILED IN THE SPECIFICATIONS, ARE AS FOLLOWS: INTERLOCKING, TAPERED, OPEN CELL, DRY CAST, AND CABLED (POLYESTER).
- 3. PREPARATION OF THE SUBGRADE IS CRITICAL TO THE SUCCESSFUL PERFORMANCE OF THE ACB SYSTEM, MATERIALS TESTING AND INSTALLATION REQUIREMENTS ARE DETAILED IN THE SPECIFICATIONS.
- 4. MANUFACTURER TO PROVIDED ON-SITE CONSULTING DURING CONSTRUCTION AS INDICATED IN THE SPECIFICATIONS.
- 5. CONTRACTOR TO SUBMIT MANUFACTURER' SPECIFICATIONS AND INSTALLATION PROCEDURES / RECOMMENDATIONS TO THE ENGINEER FOR APPROVAL.
- 6. MANUFACTURER TO CERTIFY THAT INSTALLATION WAS PERFORMED IN ACCORDANCE WITH MANUFACTURER'S PROCEDURES / RECOMMENDATIONS.
- 7. ALL SUBGRADE PREPARATION SHALL BE PERFORMED IN ACCORDANCE WITH ASTM D 6884, STANDARD PRACTICE FOR INSTALLATION OF ARTICULATING CONCRETE BLOCK (ACB) REVETMENT SYSTEMS, AS UPDATED AND AMENDED.

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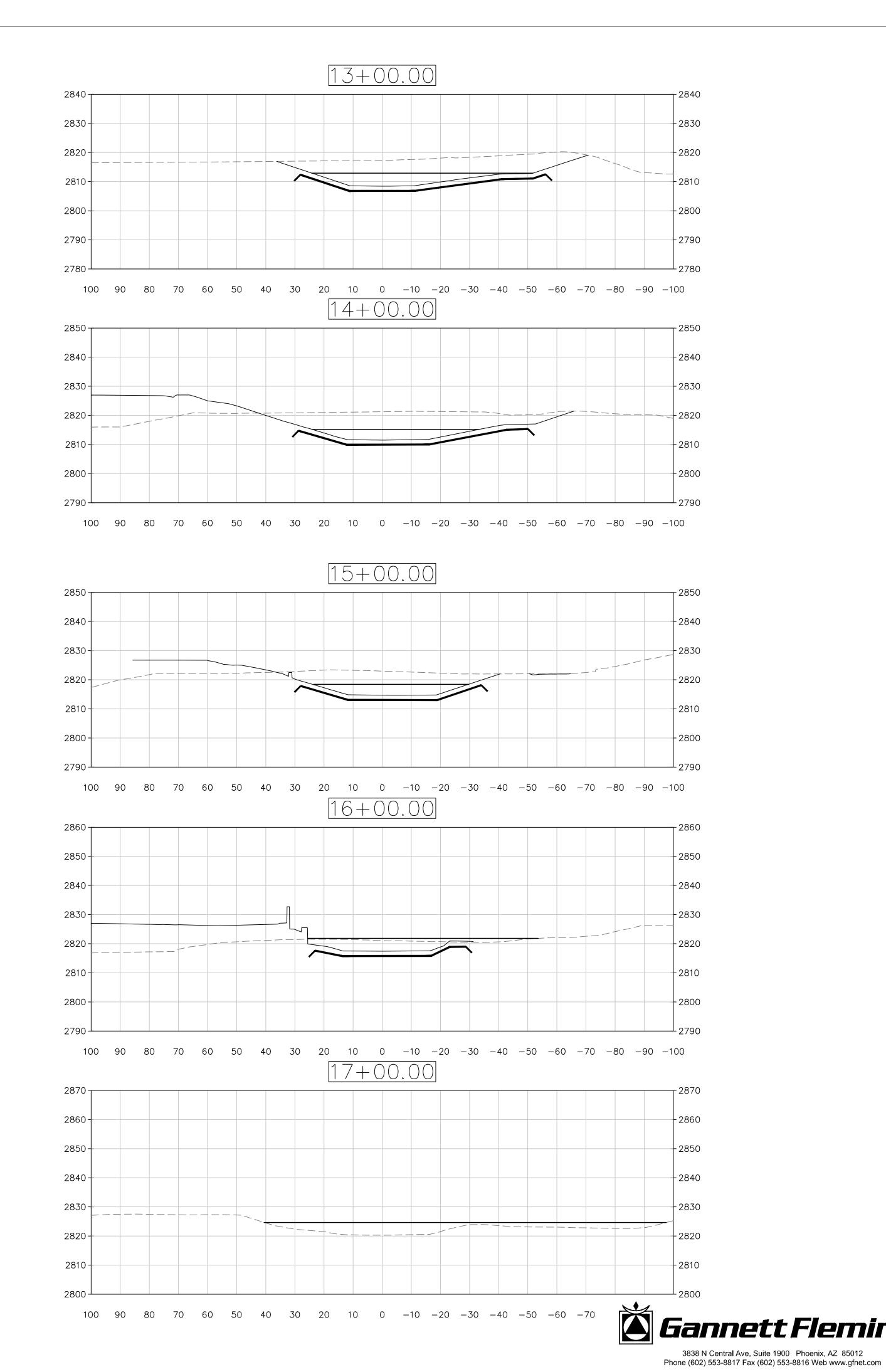
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CHECKED BY:	B. DIXC
PROJECT NO.:	2019001.
ISSUE DATE:	10/07/20
REVISIONS:	-

HEET TITLE:

WASH IMPROVEMENTS DETAILS

SHEET NUMBE





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CHECKED BY:	B. DIXC
PROJECT NO.:	2019001.
ISSUE DATE:	10/07/20
REVISIONS:	•

SHEET TITLE:

WASH
IMPROVEMENTS
CROSS-SECTIONS

SHEET NUMBE

C0.14

Contact Arizona 811 at least two full working days before you begin excevation

AR ZONA811.

Call 811 or eliek Arizona811.com

B. GENERAL NOTES, SECTIONS AND TYPICAL DETAILS APPLY EVEN THOUGH NOT SPECIFICALLY REFERENCED ON STRUCTURAL DRAWINGS.

1.02 COORDINATION:

A. VERIFY ALL SITE DIMENSIONS, ELEVATIONS, AND SLOPES WITH OTHER DISCIPLINE DRAWINGS.

B. ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL AND SIGNATURE OF AN INSURED PROFESSIONAL STRUCTURAL OR CIVIL ENGINEER REGISTERED IN THE STATE IN WHICH THE SUBMITTED ITEMS WILL BE INSTALLED WHO IS A RECOGNIZED EXPERT IN THE TYPE OF WORK SHOWN AND SPECIFIED.

C. ANY CHANGES PROPOSED BY THE CONTRACTOR TO THE DESIGN OF THE STRUCTURE DURING CONSTRUCTION SHALL BE SUBMITTED FOR REVIEW TO THE STRUCTURAL ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF STRUCTURAL AND NON-STRUCTURAL ELEMENTS AFFECTED BY PROPOSED CHANGES. THE COST OF DESIGN EFFORT NECESSITATED BY PROPOSED CHANGES SHALL BE BORNE BY THE CONTRACTOR.

D. THE COST OF DESIGN EFFORT RESULTING FROM ERRORS OR OMISSIONS

IN CONSTRUCTION SHALL BE BORNE BY THE CONTRACTOR. E. IN CASE OF CONFLICTS, THE MORE COSTLY REQUIREMENTS GOVERN.

SUBMIT CLARIFICATION REQUEST PRIOR TO PROCEEDING WITH WORK. F. VERIFY NEW AND EXISTING DIMENSIONS AND CONDITIONS PRIOR TO STARTING WORK. NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR INCONSISTENCIES.

2.01 FIELD EXECUTION:

A. STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURES. THE CONTRACTOR SHALL PROVIDE TEMPORARY BRACING, SHORING, GUYING AND OTHER MEANS TO AVOID EXCESSIVE STRESSES AND HOLD STRUCTURAL ELEMENTS IN PLACE DURING CONSTRUCTION.

B. CONTRACTOR SHALL EXERCISE EXTREME CARE TO AVOID DAMAGE TO EXISTING STRUCTURES. CONTRACTOR IS RESPONSIBLE FOR ALL MEANS AND METHODS REQUIRED TO FACILITATE CONSTRUCTION OF THE WORK AND FOR ENSURING THE SAFETY, STABILITY AND INTEGRITY OF ADJACENT STRUCTURES AND FACILITIES.

C. WHEN ANCHORING, SHOOTING, DRILLING, CHIPPING OR CORING INTO CONCRETE THE AREA SHALL BE SCANNED USING GROUND PENETRATING RADAR (GPR) PRIOR TO START OF WORK. DO NOT CUT OR NICK EXISTING REINFORCING.

D. EDGE OF DRILL HOLES AND OPENINGS SHALL BE NO LESS THAN 4" FROM EXISTING REINFORCEMENT.

STRUCTURAL DESIGN PARAMETERS

1.01 GENERAL:

A. CONSTRUCTION SHALL COMPLY WITH THE BUILDING CODE AND OTHER APPLICABLE CODES AND STANDARDS.

B. BUILDING CODE: INTERNATIONAL BUILDING CODE (IBC 2018) AS ADOPTED AND AMENDED BY CITY OF SCOTTSDALE.

2.01 DESIGN CRITERIA

A. REFERENCE STANDARDS: MINIMUM DESIGN LOADS FOR BUILDINGS AND

OTHER STRUCTURES, ASCE 7-16.

B. DEAD LOADS

1. MATERIAL WEIGHT OF STRUCTURE

C. LIVE LOADS:

1. FLOOR LIVE LOADS: UNIFORM DISTRIBUTED LOAD = XX PSF

D. WIND LOAD PARAMETERS:

1. EXPOSURE CATEGORY = C

1. BASIC WIND SPEED = 100 MPH

E. SEISMIC LOAD PARAMETERS: 1. STRUCTURAL RISK CATEGORY = II

2. SITE CLASS C

3. SEISMIC DESIGN CATEGORY = B

ANCHORAGE

4. S(DS) = 0.189g1. S(D1) = 0.081q

8. l(e)= 1.0

2. S(1) = 0.071g3. S(s) = 0.237g

1. ANALYSIS PROCEDURE USED: STRUCTURAL WALLS AND THEIR

SUBMITTALS

1.01 GENERAL

A. THE STRUCTURAL ENGINEER WILL REVIEW SUBMITTALS FOR COMPLIANCE WITH THE GENERAL DESIGN INTENT OF THE STRUCTURE AND REQUIREMENTS OF THE CONTRACT DOCUMENTS.

B. IF A SUBMITTAL CONTAINS VARIATIONS FROM THE CONTRACT DRAWINGS, NOTIFY THE STRUCTUAL ENGINEER IN WRITING DESCRIBING THE EXTENT AND REASON FOR THE VARIATION, AND CLEARLY IDENTIFY ALL ITEMS INVOLVED.

C. RE-SUBMITTED SHEETS SHALL CLEARLY IDENTIFY ADDED OR CORRECTED INFORMATION AND THE ITEMS INVOLVED BY CLOUDING AROUND ADDED OR CHANGED INFORMATION.

D. BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW, THE CONTRACTOR SHALL REVIEW, APPROVE, AND SO STAMP EACH SUBMISSION FOR CONFORMANCE WITH MEANS, METHODS, TECHNIQUES, SEQUENCES AND OPERATIONS OF CONSTRUCTION, AND WITH SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO, ALL OF WHICH ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

E. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHECK SHOP DRAWINGS AND COORDINATE SUBMITTAL INFORMATION AND CONTRACT INTERFACES PRIOR TO SUBMITTING FOR REVIEW.

F. SUBMITTALS WILL BE RETURNED WITHOUT REVIEW IF CURSORY EXAMINATION REVEALS MAJOR ERRORS WHICH SHOULD HAVE BEEN FOUND BY THE CONTRACTOR'S CHECKING. MATERIAL NOT CALLED FOR OR WHICH HAS NOT BEEN APPROVED BY THE CONTRACTOR AND BEAR THEIR STAMP WILL BE RETURNED WITHOUT REVIEW.

G. WORK DONE PRIOR TO OR WITHOUT SUBMITTAL REVIEW AND APPROVAL BY THE ENGINEER IS PERFORMED AT THE CONTRACTOR'S OWN RISK AND RESPONSIBILITY.

H. DIMENSION CHECKING AND CHECKING OF DESIGN CHANGES PROPOSED BY THE CONTRACTOR WITHOUT PRIOR CONSULTATION WITH THE ENGINEER SHALL BE CHECKED ONLY IF THE CONTRACTOR WISHES THEM TO BE CHECKED AT THEIR OWN COST.

I. ENGINEERING SUBMITTED FOR REVIEW SHALL BE APPROPRIATELY SEALED. FULL RESPONSIBILITY FOR SUCH ENGINEERING RESTS WITH THE PERSON SEALING THE DESIGN.

DEFERRED SUBMITTALS

1.01 GENERAL

A. DEFERRED SUBMITTALS ARE THOSE PORTIONS OF THE DESIGN THAT ARE NOT SUBMITTED AT THE TIME OF PERMIT APPLICATION BUT WILL BE SUBMITTED TO THE BUILDING OFFICIAL WITHIN A SPECIFIC TIME DEFERRAL OF ANY SUBMITTAL ITEMS IS SUBJECT TO APPROVAL BY THE BUILDING OFFICIAL.

B. THE CONTRACTOR SHALL INCLUDE IN THEIR COST ALL TIME AND EFFORT REQUIRED TO OBTAIN A BUILDING DEPARTMENT REVIEW AND SHALL ALSO INCLUDE ALL TIME AND EFFORT TO SECURE CALCULATIONS AND DRAWINGS APPROPRIATELY SEALED BY AN ENGINEER FOR DEFERRED ITEMS REQUIRING DESIGN.

C. DOCUMENTS FOR DEFERRED SUBMITTALS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO BEING FORWARDED TO THE BUILDING OFFICIAL. THE ENGINEER WILL REVIEW THE SUBMITTAL DOCUMENTS FOR GENERAL CONFORMANCE WITH THE DESIGN INTENT FOR THE STRUCTURE.

D. SUBMITTALS OF ENGINEERING DESIGN PROVIDED BY OTHERS SHALL HAVE DRAWINGS AND CALCULATIONS APPROPRIATELY SIGNED AND SEALED BY A PROFESSIONAL STRUCTURAL ENGINEER REGISTERED IN THE STATE IN WHICH THE SUBMITTED ITEMS WILL BE INSTALLED

E. STRUCTURAL COMPONENTS SHALL BE DESIGNED AND MANUFACTURED BY A FABRICATOR APPROVED BY THE GOVERNING BODY HAVING JURISDICTION.

F. SUBMITTALS SHALL INCLUDE KEY PLANS, SECTIONS, AND DETAILS NECESSARY FOR CONSTRUCTION.

G. THE FOLLOWING ITEMS ARE DEFERRED SUBMITTAL ITEMS. 1. MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALL

2.01 FIELD EXECUTION:

A. FIELD INSTALLATION OF DEFERRED STRUCTURAL ITEMS IS SUBJECT TO SPECIAL STRUCTURAL INSPECTION.

B. SHOP FABRICATION OF DEFERRED STRUCTURAL ITEMS MAY ALSO BE SUBJECT TO SPECIAL STRUCTURAL INSPECTION, UNLESS NOTED OTHERWISE.

FOUNDATIONS

1.01 GENERAL

A. PERFORM WORK IN ACCORDANCE WITH THE GEOTECHNICAL REPORT BY SPEEDIE AND ASSOCIATES, DATED FEBRUARY 7, 2020.

B. FOUNDATION DESIGN IS BASED ON THE FOLLOWING SOIL PROPERTIES.

SOIL CLASSIFICATION = CLASS C

2. VERTICAL (GRAVITY) NET BEARING PRESSURE = 2500 PSF AT 2 FT BELOW NATURAL GRADE

3. LATERAL AT-REST PRESSURES = 60 PSF/FT

4. LATERAL ACTIVE PRESSURES = 35 PSF/FT

5. LATERAL PASSIVE PRESSURES = 300 PSF/FT 6. BASE FRICTION COEFFICIENT = 0.35

C. UNLESS OTHERWISE SHOWN, ON ALL STRUCTURAL DRAWINGS THE FINISH GRADE AROUND STRUCTURES IS SHOWN THUS. INDICATING GROUND OR PAVEMENT. FOR DETAILS OF FINISH SURFACES, SEE CIVIL DRAWINGS.

D. CONTRACTOR SHALL SUBMIT SHORING SHOP DRAWINGS AND CALCULATIONS TO THE ENGINEER FOR REVIEW, FOR SHORING REQUIRED TO PROTECT EXISTING STRUCTURES. SHOP DRAWINGS AND CALCULATIONS SHALL BEAR THE SEAL OF A GEOTECHNICAL ENGINEER REGISTERED IN THE STATE IN WHICH CONSTRUCTION WILL BE DONE

3.01 PLACEMENT:

A. PLACE FOUNDATION CONCRETE ONLY ON CLEAN, FIRM BEARING MATERIAL AT LEAST 2'-0" BELOW THE LOWEST ADJACENT FINISH OR NATURAL GRADE, WHICHEVER IS LOWER. VERIFY THE SUITABILITY OF THE BEARING MATERIAL WITH THE GEOTECHNICAL ENGINEER BEFORE PLACING FOUNDATIONS.

B. PLACE DOWELS AND ANCHORS BEFORE PLACING CONCRETE. USE TEMPLATES TO ENSURE PROPER PLACEMENT

C. CENTER FOUNDATIONS UNDER COLUMNS AND WALLS UNLESS NOTED OTHERWISE, GROUT ALL COLUMN BASE PLATES BEFORE INSTALLING FRAMING ABOVE.

3.02 BACKFILL REQUIREMENTS

A. BACKFILL MAY BE PLACED AGAINST A WALL WITHOUT THE TOP SLAB IN PLACE UP TO THE ELEVATION SPECIFICALLY NOTED ON THE DRAWINGS BUT ONLY AFTER THE WALL CONCRETE HAS REACHED 4000 PSI STRENGTH. IF ELEVATION/DEPTH IS NOT NOTED ON THE DRAWINGS CONTACT THE STRUCTURAL ENGINEER.

B. REMAINDER OF BACKFILL (ABOVE THE ELEVATION NOTED) MAY BE PLACED AGAINST THE WALL ONLY AFTER THE TOP SLAB IS IN PLACE AND THE CONCRETE IN THE TOP SLAB HAS REACHED THE STRENGTH EQUAL TO 75% OF THE SPECIFIED STRENGTH OR 3000 PSI, WHICHEVER IS LESS.

C. HEAVY EQUIPMENT IS PROHIBITED WITHIN A DISTANCE EQUAL TO THE DEPTH OF BACKFILL PLACED, OR 10'-0", WHICHEVER IS LESS

D. COMPACTION EQUIPMENT ALLOWED WITHIN DEPTH OF BACKFILL OR 10'-0", WHICHEVER IS LESS, IS LIMITED TO JUMPING JACKS AND/OR WALK-BEHIND COMPACTORS. A BOBCAT MAY BE USED TO PLACE AND LEVEL BACKFILL.

E. DEGREE OF COMPACTION (AS PERCENTAGE PROCTOR DENSITY) SHALL BE TESTED AS REQUIRED BY THE GEOTECHNICAL ENGINEER.

F. FOR WALLS HAVING FILL ON EACH SIDE, PROCEED WITH BACKFILLING OPERATIONS IN UNIFORM LIFTS. DIFFERENTIAL ELEVATION OF TOP OF LIFTS SHALL NOT EXCEED 24 INCHES.

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S E

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15-DR-2021_V2

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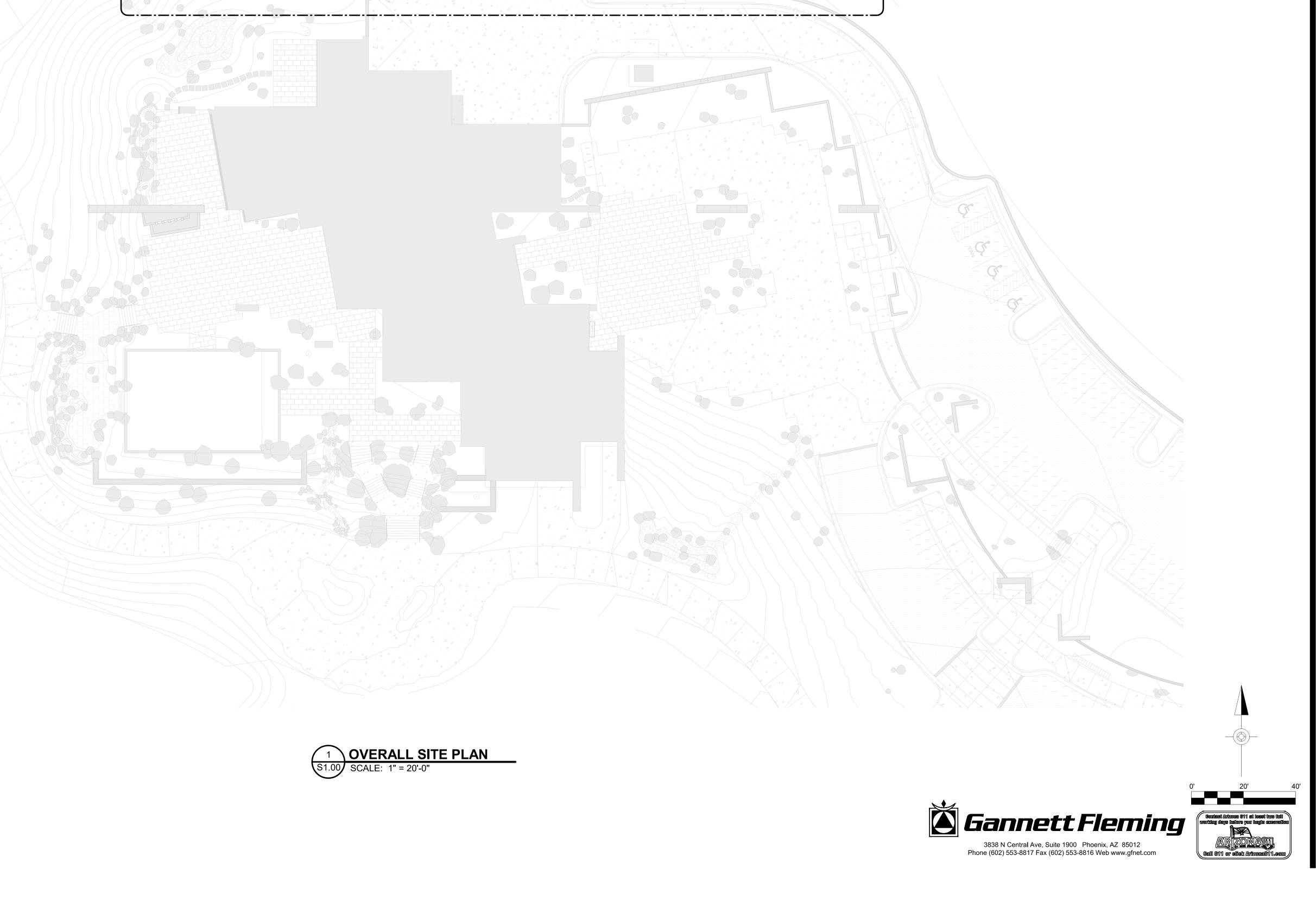
PROJECT NO.: 2019001.20 ISSUE DATE 10/07/2021 REVISIONS:

GENERAL

STRUCTURAL NOTES

S_{0.01}





-- MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALL PER MFR

S1.00 S2.00

—GALLOWAY WASH

MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALL PER MFR—

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ESERT MOUNTAIN RENEGADE CLUBHOUSE

NOT FOR CONSTRUCTION

PROJECT NO.: REVISIONS:

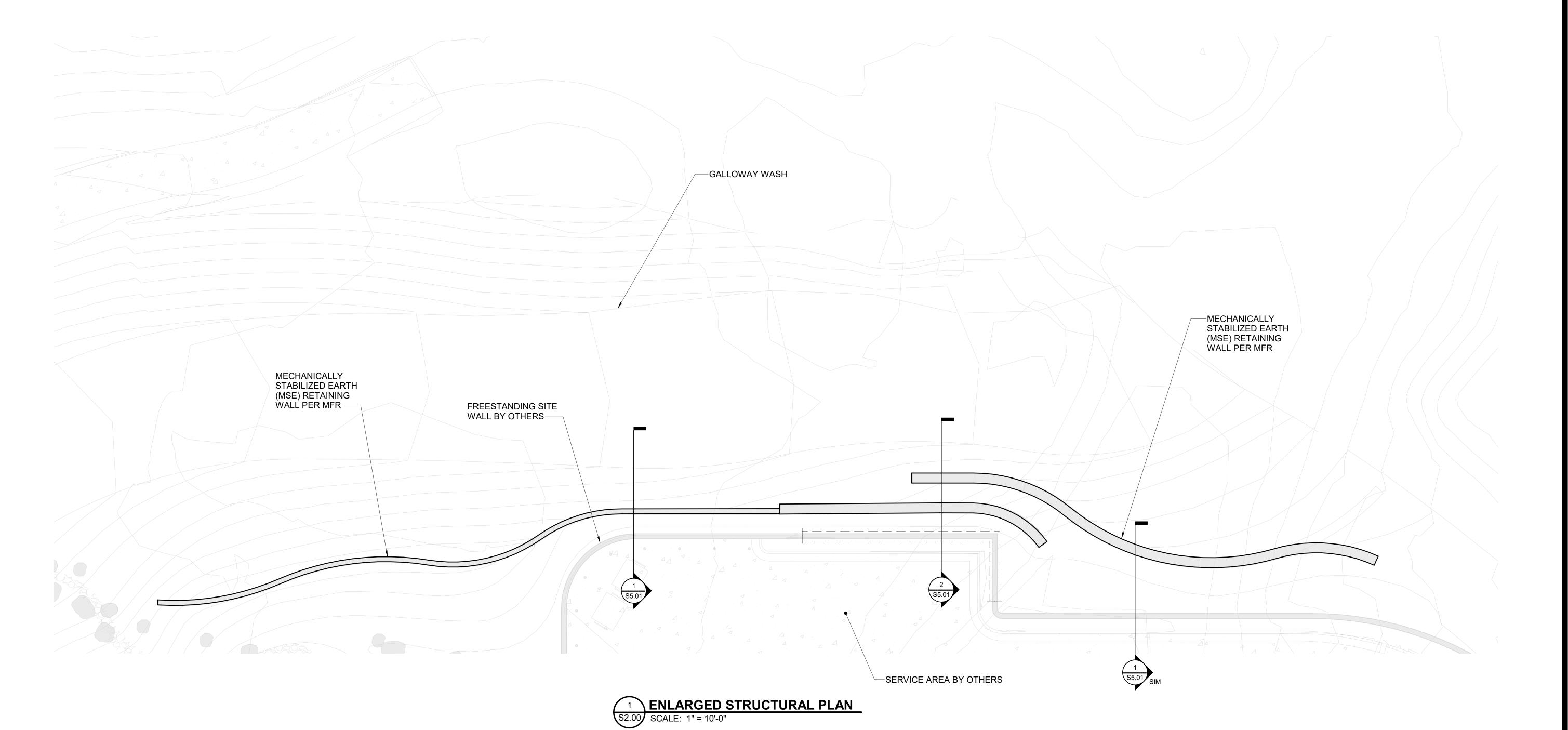
OVERALL SITE PLAN

S1.00

REVISIONS:

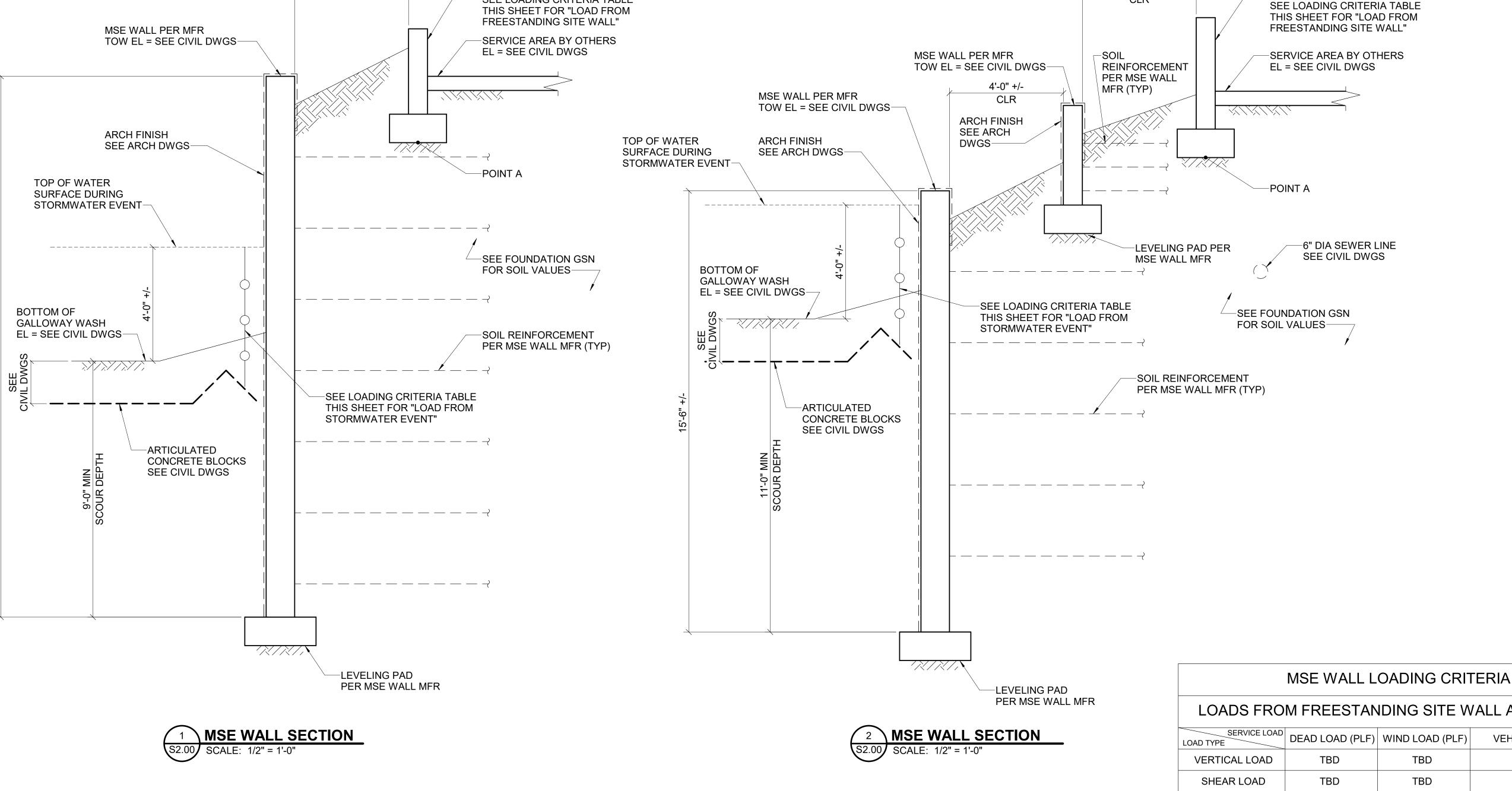
ENLARGED STRUCTURAL PLAN

S2.00





6-WM-2021_V2 10/12/2021



MSE WALL GENERAL NOTES

4'-0" +/-

CLR

FREE STANDING

SITE WALL BY OTHERS

SEE LOADING CRITERIA TABLE

MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS ARE TO BE DESIGNED BY THE MSE WALL MANUFACTURER & CONSTRUCTED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS & PROJECT SPECIFICATIONS.

THE MSE WALL MANUFACTURER IS RESPONSIBLE FOR DESIGNING THE MSE WALLS TO ACCOMODATE OBSTRUCTIONS LOCATED WITHIN THE REINFORCED BACKFILL ZONE. THESE OBSTRUCTIONS INCLUDE WALL FOUNDATION, SEWER LINE, & OTHER ITEMS AS SHOWN ON THE PROJECT PLANS.

SEE THIS SHEET AND CIVIL DRAWINGS FOR TOP OF LEVELING PAD ELEVATIONS. THE LEVELING PAD SIZE SHALL BE DETERMINED BY THE MSE WALL MANUFACTURER'S REQUIREMENTS (6" DEEP X 12" WIDE MINIMUM).

LOADS FROM FREESTANDING SITE WALL AT POINT A * SERVICE LOAD DEAD LOAD (PLF) WIND LOAD (PLF) VEHICLE LOAD (PLF) TBD TBD MOMENT TBD

FREE STANDING

SITE WALL BY OTHERS

4'-0" +/-

CLR

LOADS FROM STORMWATER EVENT ** SERVICE LOAD HYDRAULIC LOAD (PLF) LOAD TYPE

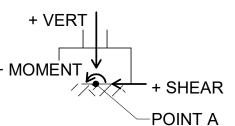
SHEAR LOAD

1. POINT A IS INTERSECTION OF CENTERLINE OF FREESTANDING WALL AND FOOTING BOTTOM. ELEVATION OF FOOTING BOTTOM SHALL BE SUPPLIED BY WALL ENGINEER. 2. * POSITIVE DIRECTION OF LOADS SHALL BE AS SHOWN BELOW.

TBD

TBD

TBD



3. ** POSITIVE DIRECTION OF LOAD SHALL BE TANGENTIAL TO FACE OF MSE WALL AND SHALL BE POINTED DOWNSTREAM.





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A A SERT MOUNT, RENEGADE CLUBHOUS

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15-DR-2021_V2

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SECTIONS DETAILS

S5.01

Appendix E On-Site Hydrology





NOAA Atlas 14, Volume 1, Version 5 Location name: Scottsdale, Arizona, USA* Latitude: 33.8366°, Longitude: -111.8679° Elevation: 2819.97 ft**

* source: ESRI Maps ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF tabular | PF graphical | Maps & aerials

PF tabular

PDS	PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹ Average recurrence interval (years)													
Duration				Average	e recurrence	interval (ye	ars)							
Duration	1	2	5	10	25	50	100	200	500	1000				
5-min	0.252 (0.210-0.308)	0.328 (0.274-0.401)	0.442 (0.365-0.537)	0.527 (0.434-0.639)	0.641 (0.521-0.774)	0.727 (0.584-0.873)	0.814 (0.644-0.975)	0.902 (0.705-1.08)	1.02 (0.779-1.22)	1.11 (0.834-1.34)				
10-min	0.383 (0.319-0.468)	0.499 (0.417-0.610)	0.672 (0.556-0.818)	0.802 (0.661-0.973)	0.976 (0.793-1.18)	1.11 1.24 (0.889-1.33) (0.981-1.48)		1.37 (1.07-1.64)	1.55 (1.19-1.86)	1.69 (1.27-2.04)				
15-min	0.475 (0.396-0.580)	0.619 (0.517-0.756)	0.833 (0.689-1.01)	0.995 (0.819-1.21)	1.21 (0.983-1.46)	1.37 (1.10-1.65)	1.54 (1.22-1.84)	1.70 (1.33-2.04)	1.92 (1.47-2.31)	2.10 (1.57-2.53)				
30-min	0.640 (0.534-0.781)	0.833 (0.696-1.02)	1.12 (0.928-1.37)	1.34 (1.10-1.62)	1.63 (1.32-1.97)	1.85 (1.48-2.22)	2.07 (1.64-2.48)	2.29 (1.79-2.75)	2.59 (1.98-3.11)	2.83 (2.12-3.41)				
60-min	0.792 (0.660-0.967)	1.03 (0.862-1.26)	1.39 (1.15-1.69)	1.66 (1.37-2.01)	2.02 (1.64-2.43)	2.29 (1.84-2.75)	2.56 (2.03-3.07)	2.84 (2.22-3.40)	3.21 (2.45-3.85)	3.50 (2.62-4.22)				
2-hr	0.922 (0.781-1.10)	1.19 (1.01-1.43)	1.57 (1.33-1.88)	1.87 (1.56-2.24)	2.28 (1.88-2.71)	2.58 (2.11-3.06)	2.90 (2.34-3.43)	3.22 (2.55-3.80)	3.65 (2.84-4.31)	3.98 (3.04-4.74)				
3-hr	0.990 (0.839-1.19)	1.26 (1.08-1.53)	1.64 (1.39-1.99)	1.95 (1.63-2.34)	2.37 (1.96-2.83)	2.70 (2.21-3.22)	3.05 (2.45-3.62)	3.41 (2.70-4.05)	3.90 (3.02-4.64)	4.31 (3.25-5.13)				
6-hr	1.17 1.47 1.87		2.18 (1.87-2.54)	2.62 (2.22-3.03)	2.96 (2.47-3.41)	3.31 (2.73-3.82)	3.67 (2.98-4.24)	4.15 (3.29-4.80)	4.53 (3.51-5.24)					
12-hr	1.42 (1.24-1.64)	1.78 (1.56-2.07)	2.23 (1.94-2.58)	2.59 (2.24-2.99)	3.08 (2.63-3.55)	3.45 (2.92-3.97)	3.84 (3.21-4.41)	4.23 (3.49-4.86)	4.74 (3.83-5.47)	5.13 (4.08-5.96)				
24-hr	1.63 (1.45-1.86)	2.07 (1.84-2.36)	2.72 (2.40-3.09)	3.24 (2.85-3.69)	4.00 (3.47-4.56)	4.62 (3.95-5.29)	5.29 (4.44-6.13)	6.00 (4.93-7.03)	7.02 (5.61-8.38)	7.86 (6.13-9.53)				
2-day	1.91 (1.68-2.19)	2.44 (2.14-2.80)	3.22 (2.81-3.68)	3.86 (3.35-4.40)	4.76 (4.09-5.45)	5.50 (4.66-6.34)	6.29 (5.25-7.32)	7.13 (5.85-8.41)	8.32 (6.63-9.98)	9.28 (7.24-11.3)				
3-day	2.02 (1.78-2.32)	2.59 (2.28-2.97)	3.45 (3.02-3.93)	4.15 (3.62-4.72)	5.17 (4.45-5.90)	6.01 (5.10-6.92)	6.92 (5.78-8.06)	7.90 (6.47-9.33)	9.32 (7.41-11.2)	10.5 (8.15-12.8)				
4-day	2.13 (1.88-2.45)	2.74 (2.41-3.14)	3.67 (3.22-4.18)	4.44 (3.88-5.04)	5.58 (4.80-6.36)	6.52 (5.54-7.50)	7.55 (6.31-8.80)	8.67 (7.10-10.3)	10.3 (8.20-12.4)	11.7 (9.06-14.4)				
7-day	2.48 (2.17-2.86)	3.17 (2.77-3.64)	4.25 (3.71-4.87)	5.16 (4.47-5.90)	6.50 (5.56-7.45)	7.62 (6.43-8.82)	8.86 (7.35-10.4)	10.2 (8.32-12.2)	12.2 (9.65-14.9)	13.9 (10.7-17.3)				
10-day	2.73 (2.40-3.12)	3.49 (3.07-4.00)	4.66 (4.08-5.33)	5.64 (4.90-6.42)	7.08 (6.07-8.10)	8.28 (7.01-9.56)	9.60 (7.99-11.2)	11.0 (9.02-13.1)	13.1 (10.4-15.9)	14.9 (11.5-18.4)				
20-day	3.52 (3.10-4.03)	4.53 (3.99-5.17)	6.00 (5.26-6.83)	7.18 (6.25-8.16)	8.84 (7.63-10.1)	10.2 (8.68-11.7)	11.6 (9.78-13.5)	13.1 (10.9-15.5)	15.3 (12.3-18.4)	17.0 (13.5-20.8)				
30-day	4.21 (3.70-4.81)	5.42 (4.77-6.17)	7.18 (6.29-8.14)	8.56 (7.47-9.69)	10.5 (9.07-11.9)	12.0 (10.3-13.7)	13.6 (11.5-15.6)	15.2 (12.7-17.7)	17.5 (14.3-20.9)	19.4 (15.5-23.4)				
45-day	5.03 (4.44-5.71)	6.48 (5.72-7.36)	8.57 (7.55-9.70)	10.2 (8.95-11.6)	12.5 (10.8-14.2)	14.2 (12.3-16.3)	16.1 (13.7-18.6)	18.1 (15.1-21.1)	20.8 (17.0-24.8)	23.0 (18.5-27.8)				
60-day	5.64 (4.99-6.39)	7.27 (6.43-8.22)	9.57 (8.45-10.8)	11.3 (9.96-12.8)	13.7 (12.0-15.6)	15.6 (13.5-17.8)	17.5 (14.9-20.1)	19.5 (16.4-22.7)	22.2 (18.4-26.4)	24.4 (19.8-29.5)				

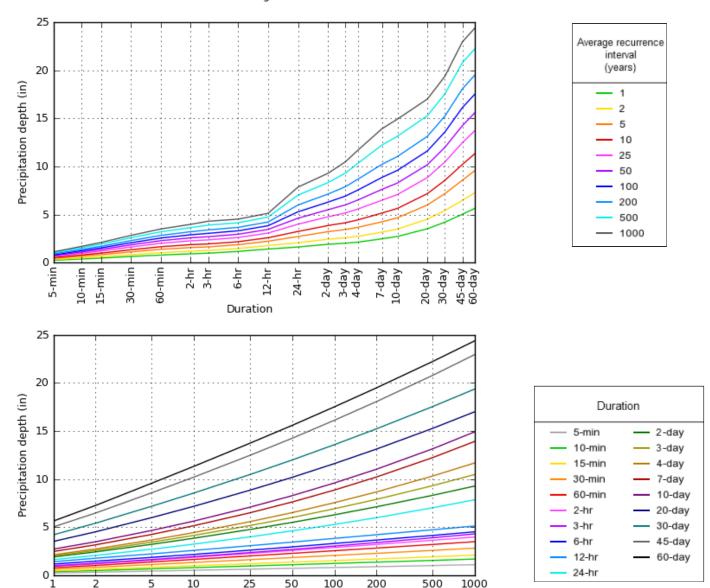
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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PF graphical

PDS-based depth-duration-frequency (DDF) curves Latitude: 33.8366°, Longitude: -111.8679°



NOAA Atlas 14, Volume 1, Version 5

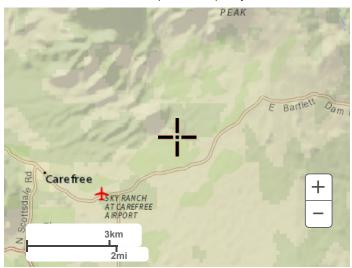
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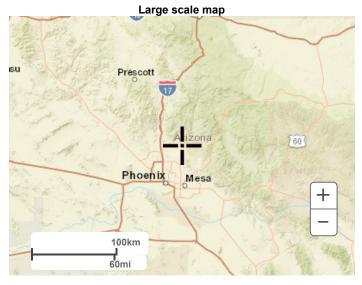
Maps & aerials

Small scale terrain

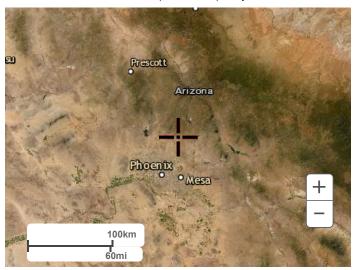
Average recurrence interval (years)







Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Page 1 Project Reference: RCLUBHOUSE PRE 4/12/2021

ID			;	Sub Basin Data						Sub Basin Hyd	rology Summai	ry	
	Area (acres)	Length (ft)	USGE	DSGE	Slope (ft/mi)	Kb		2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
Major B	asin ID: 01												
DA-1	7.3	1,110	2,852.00	2,818.00	161.7	0.035	Q (cfs)	7.1	9.6	11.4	13.9	18.4	24.0
		.,	_,	_,			Ċ	0.37	0.37	0.37	0.37	0.43	0.50
							CA (ac)	2.69	2.69	2.69	2.69	3.13	3.64
							Volume (ac-ft)	0.1306	0.1765	0.2096	0.2556	0.3383	0.4413
							Tc (min)	10	10	10	10	10	10
							i (in/hr)	2.64	3.56	4.25	5.18	5.88	6.59
DA-2	2.0	625	2,839.00	2,818.00	177.4	0.038	Q (cfs)	3.0	4.0	4.8	5.8	7.5	9.4
							С	0.57	0.57	0.57	0.57	0.65	0.72
							CA (ac)	1.12	1.12	1.12	1.12	1.28	1.42
							Volume (ac-ft)	0.0552	0.0736	0.0883	0.1067	0.1379	0.1729
							Tc (min)	10	10	10	10	10	10
							i (in/hr)	2.64	3.56	4.25	5.18	5.88	6.59
DA-3A	4.4	946	2,870.00	2,827.00	240.0	0.036	Q (cfs)	8.2	11.0	13.2	16.1	20.3	24.5
							С	0.70	0.70	0.70	0.70	0.78	0.84
							CA (ac)	3.10	3.10	3.10	3.10	3.46	3.72
							Volume (ac-ft)	0.1508	0.2023	0.2427	0.2961	0.3733	0.4505
							Tc (min)	10	10	10	10	10	10
							i (in/hr)	2.64	3.56	4.25	5.18	5.88	6.59
DA-3B	1.4	527	2,830.00	2,810.00	200.4	0.039	Q (cfs)	2.9	4.0	4.7	5.7	6.9	8.1
							С	0.82	0.82	0.82	0.82	0.87	0.91
							CA (ac)	1.11	1.11	1.11	1.11	1.17	1.23
							Volume (ac-ft)	0.0533	0.0736	0.0864	0.1048	0.1269	0.1489
							Tc (min)	10	10	10	10	10	10
							i (in/hr)	2.64	3.56	4.25	5.18	5.88	6.59
DA-4	4.5	580	2,841.00	2,806.00	318.6	0.036	Q (cfs)	9.1	12.2	14.6	17.8	21.8	26.6
							С	0.76	0.76	0.76	0.76	0.82	0.89

* Non default value (stSubBasRat.rpt)

Page 2 Project Reference: RCLUBHOUSE PRE 4/12/2021

ID			5	Sub Basin Data						Sub Basin Hyd	rology Summai	ту	
	Area (acres)	Length (ft)	USGE	DSGE	Slope (ft/mi)	Kb		2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
Major B	asin ID: 01												
							CA (ac)	3.44	3.44	3.44	3.44	3.71	4.03
							Volume (ac-ft)	0.1673	0.2243	0.2685	0.3273	0.4009	0.4891
							Tc (min)	10	10	10	10	10	10
							i (in/hr)	2.64	3.56	4.25	5.18	5.88	6.59
DA-5	4.5	660	2,838.00	2,810.00	224.0	0.036	Q (cfs)	6.2	8.4	10.0	12.2	15.8	19.8
							С	0.52	0.52	0.52	0.52	0.59	0.66
							CA (ac)	2.36	2.36	2.36	2.36	2.68	3.00
							Volume (ac-ft)	0.1140	0.1545	0.1839	0.2243	0.2905	0.3641
							Tc (min)	10	10	10	10	10	10
							i (in/hr)	2.64	3.56	4.25	5.18	5.88	6.59
DA-6	10.2	1,157	2,823.00	2,784.00	178.0	0.034	Q (cfs)	5.9	8.0	9.5	11.6	16.2	22.2
							С	0.22	0.22	0.22	0.22	0.27	0.33
							CA (ac)	2.24	2.24	2.24	2.24	2.75	3.37
							Volume (ac-ft)	0.1085	0.1471	0.1747	0.2133	0.2979	0.4082
							Tc (min)	10	10	10	10	10	10
							i (in/hr)	2.64	3.56	4.25	5.18	5.88	6.59
DA-7	2.0	730	2,812.00	2,775.00	267.6	0.038	Q (cfs)	3.6	4.8	5.7	7.0	8.8	10.6
							С	0.66	0.66	0.66	0.66	0.73	0.79
							CA (ac)	1.35	1.35	1.35	1.35	1.49	1.61
							Volume (ac-ft)	0.0662	0.0883	0.1048	0.1287	0.1618	0.1949
							Tc (min)	10	10	10	10	10	10
							i (in/hr)	2.64	3.56	4.25	5.18	5.88	6.59

Page 1 Project Reference: RCLUBHOUSE PRE 4/12/2021

Sub Basin	Land Use Code	Area (acres)	Area (%)	Kb			Runoff Coe	fficient C			Description
		(22.23)	(/-/		2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	
Major Ba	sin ID: 01										
DA-1	720	7.27	100.0	0.035	0.37*	0.37*	0.37*	0.37*	0.43*	0.50*	
		7.270	100.0								
DA-2	720	1.97	100.0	0.038	0.57*	0.57*	0.57*	0.57*	0.65*	0.72*	
		1.970	100.0								
DA-3A	720	4.43	100.0	0.036	0.70*	0.70*	0.70*	0.70*	0.78*	0.84*	
		4.430	100.0								
DA-3B	720	1.35	100.0	0.039	0.82*	0.82*	0.82*	0.82*	0.87*	0.91*	
		1.350	100.0								
DA-4	720	4.53	100.0	0.036	0.76*	0.76*	0.76*	0.76*	0.82*	0.89*	
		4.530	100.0								
DA-5	720	4.54	100.0	0.036	0.52*	0.52*	0.52*	0.52*	0.59*	0.66*	
		4.540	100.0								
DA-6	720	10.20	100.0	0.034	0.22*	0.22*	0.22*	0.22*	0.27*	0.33*	
		10.200	100.0								
DA-7	720	2.04	100.0	0.038	0.66*	0.66*	0.66*	0.66*	0.73*	0.79*	
		2.040	100.0								

Page 1 Project Reference: RCLUBHOUSE POST 4/12/2021

ID			:	Sub Basin Data						Sub Basin Hyd	rology Summai	ry	
	Area (acres)	Length (ft)	USGE	DSGE	Slope (ft/mi)	Kb		2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
Major B	asin ID: 01												
DA-1	7.9	1,110	2,852.00	2,820.00	152.2	0.034	Q (cfs)	7.9	10.7	12.8	15.6	20.9	27.2
		.,	_,	_,=====			Ċ	0.38	0.38	0.38	0.38	0.45	0.52
							CA (ac)	3.01	3.01	3.01	3.01	3.56	4.12
							Volume (ac-ft)	0.1453	0.1968	0.2354	0.2869	0.3843	0.5002
							Tc (min)	10	10	10	10	10	10
							i (in/hr)	2.64	3.56	4.25	5.18	5.88	6.59
DA-3	4.6	946	2,870.00	2,827.00	240.0	0.036	Q (cfs)	8.5	11.5	13.7	16.7	21.1	25.5
							С	0.71	0.71	0.71	0.71	0.79	0.85
							CA (ac)	3.23	3.23	3.23	3.23	3.59	3.87
							Volume (ac-ft)	0.1563	0.2115	0.2519	0.3071	0.3880	0.4689
							Tc (min)	10	10	10	10	10	10
							i (in/hr)	2.64	3.56	4.25	5.18	5.88	6.59
DA-4	3.8	800	2,829.00	2,806.00	151.8	0.036	Q (cfs)	7.7	10.4	12.4	15.1	18.8	22.5
							С	0.76	0.76	0.76	0.76	0.83	0.89
							CA (ac)	2.92	2.92	2.92	2.92	3.19	3.42
							Volume (ac-ft)	0.1416	0.1912	0.2280	0.2777	0.3457	0.4137
							Tc (min)	10	10	10	10	10	10
							i (in/hr)	2.64	3.56	4.25	5.18	5.88	6.59
DA-5A	2.1	540	2,827.00	2,800.00	264.0	0.038	Q (cfs)	2.5	3.3	4.0	4.9	6.4	8.1
							С	0.45	0.45	0.45	0.45	0.52	0.59
							CA (ac)	0.94	0.94	0.94	0.94	1.08	1.23
							Volume (ac-ft)	0.0460	0.0607	0.0736	0.0901	0.1177	0.1489
							Tc (min)	10	10	10	10	10	10
							i (in/hr)	2.64	3.56	4.25	5.18	5.88	6.59
DA-5B	2.2	1,021	2,833.00	2,791.00	217.2	0.038	Q (cfs)	4.0	5.3	6.4	7.8	10.0	12.5
							С	0.67	0.67	0.67	0.67	0.76	0.85

* Non default value (stSubBasRat.rpt)

Page 2 Project Reference: RCLUBHOUSE POST 4/12/2021

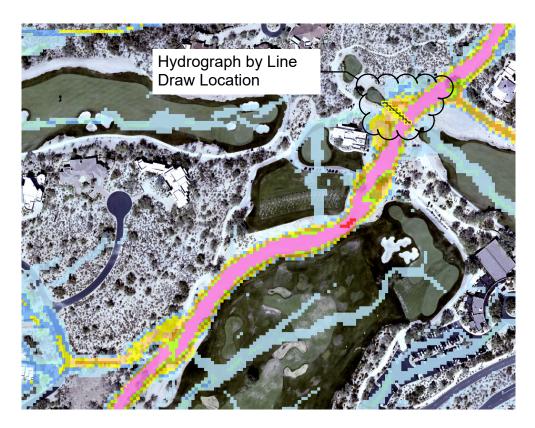
ID			\$	Sub Basin Data						Sub Basin Hyd	rology Summai	ту	
	Area (acres)	Length (ft)	USGE	DSGE	Slope (ft/mi)	Kb		2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
Major Bas	in ID: 01												
							CA (ac)	1.50	1.50	1.50	1.50	1.70	1.90
							Volume (ac-ft)	0.0736	0.0975	0.1177	0.1434	0.1839	0.2299
							Tc (min)	10	10	10	10	10	10
							i (in/hr)	2.64	3.56	4.25	5.18	5.88	6.59
DA-6	14.4	1,715	2,829.00	2,784.00	138.5	0.033	Q (cfs)	11.8	15.9	19.0	23.2	30.5	39.0
							C	0.31	0.31	0.31	0.31	0.36	0.41
							CA (ac)	4.47	4.47	4.47	4.47	5.19	5.92
							Volume (ac-ft)	0.2170	0.2924	0.3494	0.4266	0.5608	0.7171
							Tc (min)	10	10	10	10	10	10
							i (in/hr)	2.64	3.56	4.25	5.18	5.88	6.59
DA-7	2.0	730	2,812.00	2,775.00	267.6	0.038	Q (cfs)	3.6	4.8	5.7	7.0	8.8	10.6
			,	,			C	0.66	0.66	0.66	0.66	0.73	0.79
							CA (ac)	1.35	1.35	1.35	1.35	1.49	1.61
							Volume (ac-ft)	0.0662	0.0883	0.1048	0.1287	0.1618	0.1949
							Tc (min)	10	10	10	10	10	10
							i (in/hr)	2.64	3.56	4.25	5.18	5.88	6.59

Page 1 Project Reference: RCLUBHOUSE POST 4/12/2021

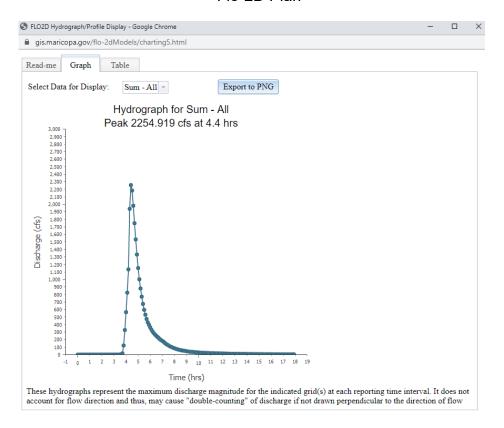
Sub Basin	Land Use Code	Area (acres)	Area (%)	Kb	Runoff Coefficient C						Description
		,	. ,		2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	
Major Ba	sin ID: 01										
DA-1	720	7.92	100.0	0.034	0.38*	0.38*	0.38*	0.38*	0.45*	0.52*	
		7.920	100.0								
DA-3	720	4.55	100.0	0.036	0.71*	0.71*	0.71*	0.71*	0.79*	0.85*	
		4.550	100.0								
DA-4	720	3.84	100.0	0.036	0.76*	0.76*	0.76*	0.76*	0.83*	0.89*	
		3.840	100.0								
DA-5A	720	2.08	100.0	0.038	0.45*	0.45*	0.45*	0.45*	0.52*	0.59*	
		2.080	100.0								
DA-5B	720	2.24	100.0	0.038	0.67*	0.67*	0.67*	0.67*	0.76*	0.85*	
		2.240	100.0								
DA-6	720	14.43	100.0	0.033	0.31*	0.31*	0.31*	0.31*	0.36*	0.41*	
		14.430	100.0								
DA-7	720	2.04	100.0	0.038	0.66*	0.66*	0.66*	0.66*	0.73*	0.79*	
		2.040	100.0								

Appendix F Hydraulic Analysis Supporting Data

Flo-2D Data



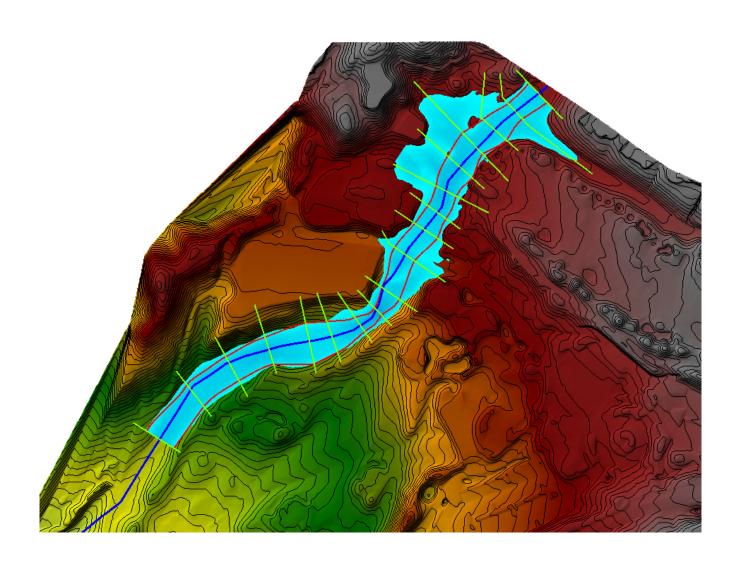
Flo-2D Plan



Flo-2D Hydrograph

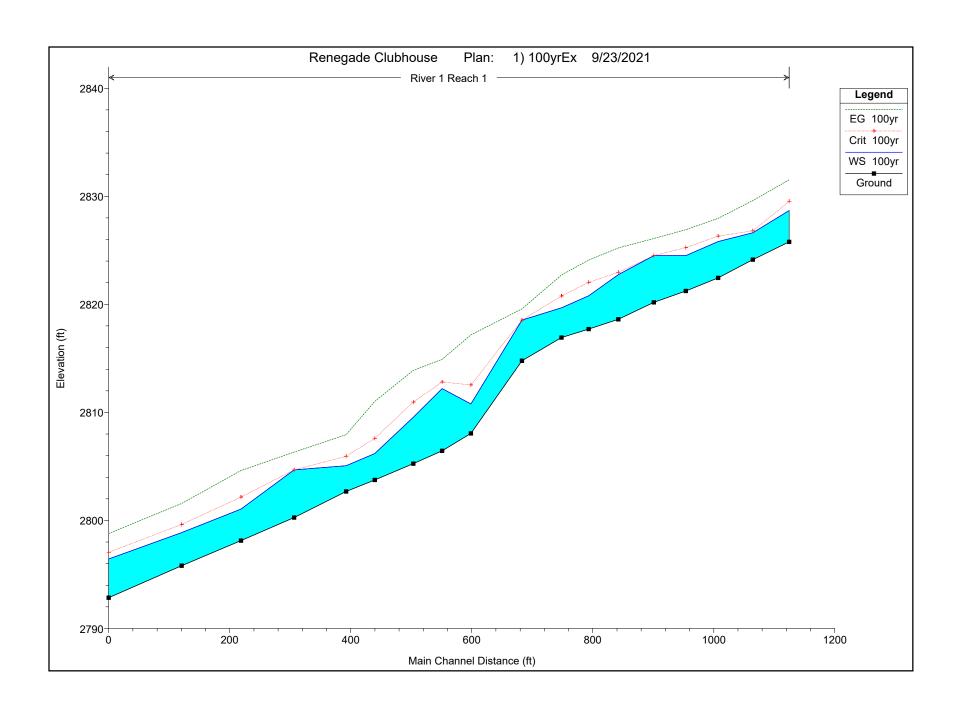


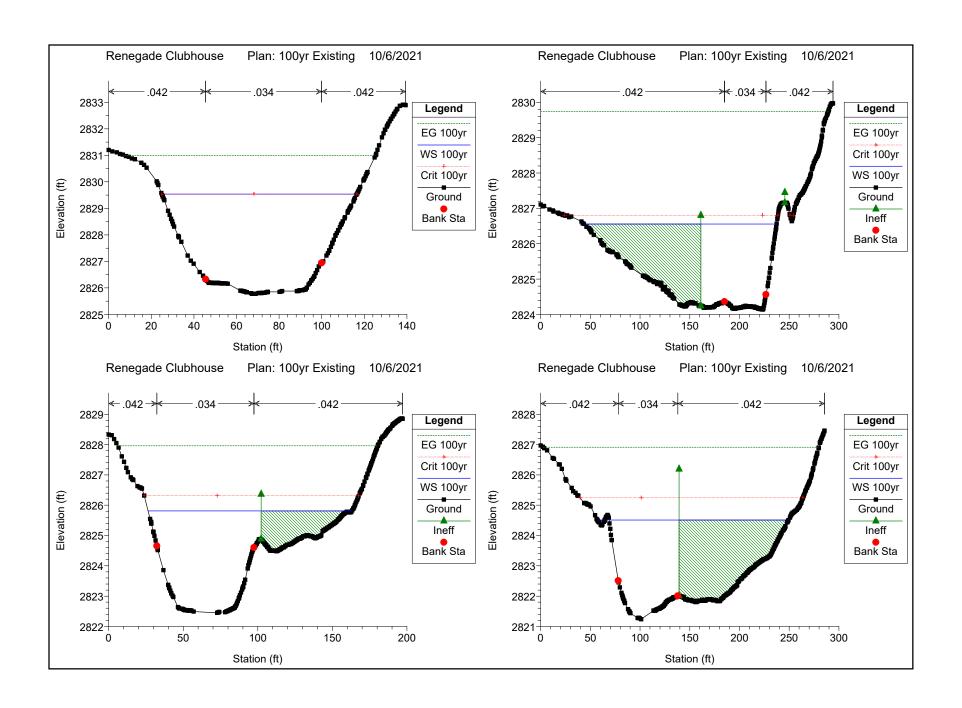
HEC-RAS PLAN & CROSS SECTIONS (EXISTING)

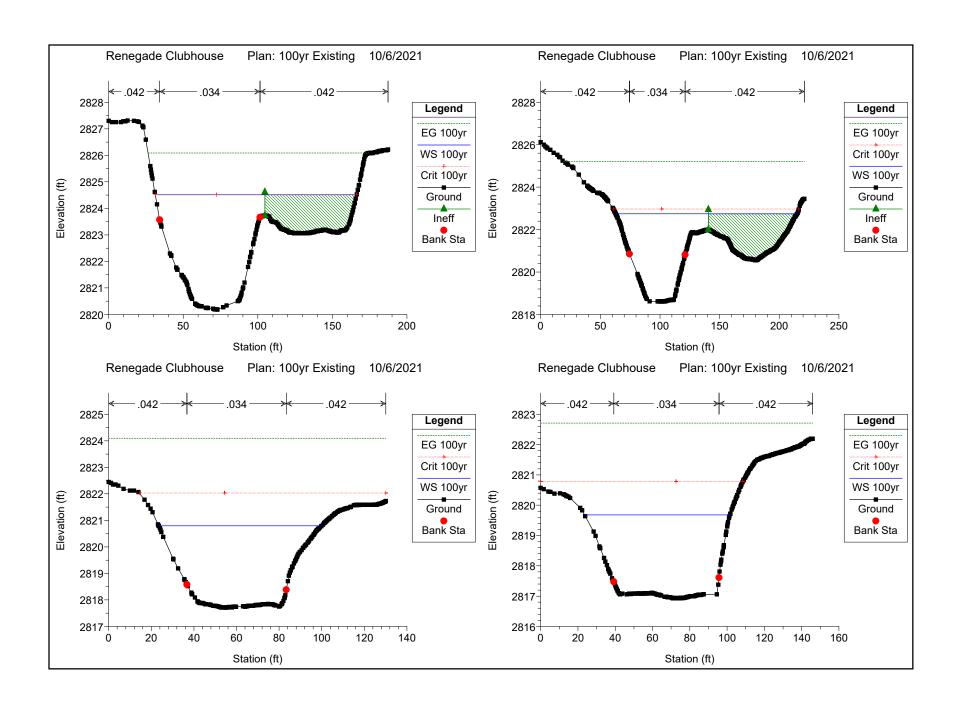


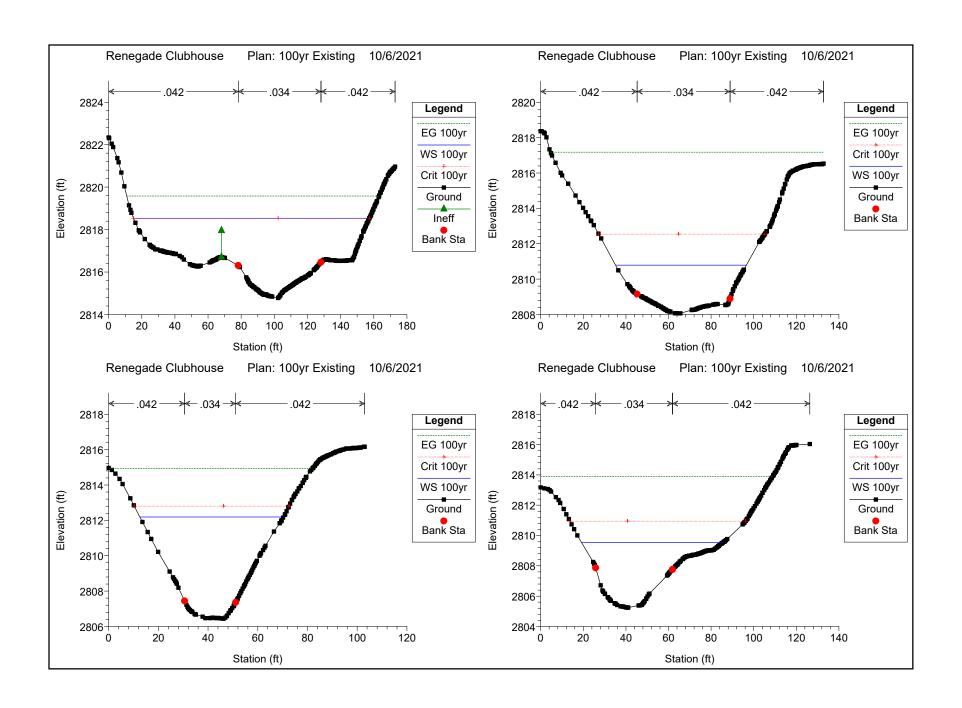
HEC-RAS Plan: 100yrEx River: River 1 Reach: Reach 1 Profile: 100yr

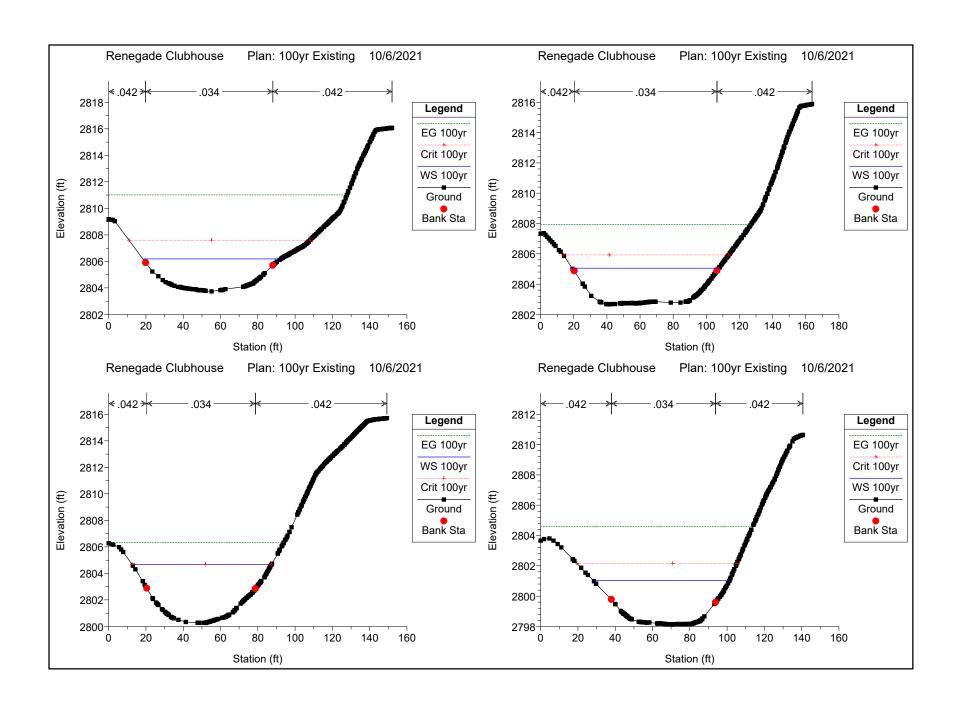
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	1896	100yr	2255.00	2825.78	2829.54	2829.54	2831.00	0.010228	10.21	251.63	91.56	0.96
Reach 1	1836	100yr	2255.00	2824.14	2826.56	2826.81	2829.74	0.040076	15.38	163.39	193.69	1.78
Reach 1	1778	100yr	2255.00	2822.45	2825.81	2826.31	2827.96	0.018017	11.84	195.87	136.61	1.23
Reach 1	1725	100yr	2255.00	2821.24	2824.51	2825.25	2826.91	0.020283	12.60	186.34	187.83	1.31
Reach 1	1672	100yr	2255.00	2820.19	2824.52	2824.52	2826.09	0.010947	10.08	226.51	135.10	0.98
Reach 1	1614	100yr	2255.00	2818.61	2822.75	2822.97	2825.22	0.016579	12.94	193.84	152.11	1.22
Reach 1	1565	100yr	2255.00	2817.71	2820.80	2822.03	2824.10	0.028308	15.08	167.65	76.67	1.55
Reach 1	1520	100yr	2255.00	2816.93	2819.68	2820.78	2822.71	0.029708	14.31	170.03	77.95	1.56
Reach 1	1454	100yr	2255.00	2814.78	2818.53	2818.53	2819.58	0.010544	9.49	309.10	142.28	0.95
Reach 1	1370	100yr	2255.00	2808.06	2810.79	2812.54	2817.18	0.073836	20.82	117.50	61.44	2.41
Reach 1	1322	100yr	2255.00	2806.44	2812.19	2812.81	2814.93	0.012094	14.88	199.22	57.78	1.12
Reach 1	1275	100yr	2255.00	2805.25	2809.55	2810.95	2813.90	0.030519	17.18	147.88	66.50	1.63
Reach 1	1211	100yr	2255.00	2803.74	2806.19	2807.60	2811.02	0.071175	17.65	128.73	73.95	2.28
Reach 1	1164	100yr	2255.00	2802.68	2805.06	2805.93	2807.94	0.040795	13.62	165.78	88.61	1.73
Reach 1	1078	100yr	2255.00	2800.27	2804.68	2804.68	2806.33	0.010254	10.41	227.06	74.86	0.96
Reach 1	990	100yr	2255.00	2798.13	2801.05	2802.16	2804.61	0.035478	15.34	155.00	73.18	1.69
Reach 1	892	100yr	2255.00	2795.80	2798.87	2799.63	2801.57	0.023202	13.43	178.90	73.76	1.40
Reach 1	771	100yr	2255.00	2792.84	2796.43	2797.05	2798.78	0.021435	12.34	185.42	78.00	1.32

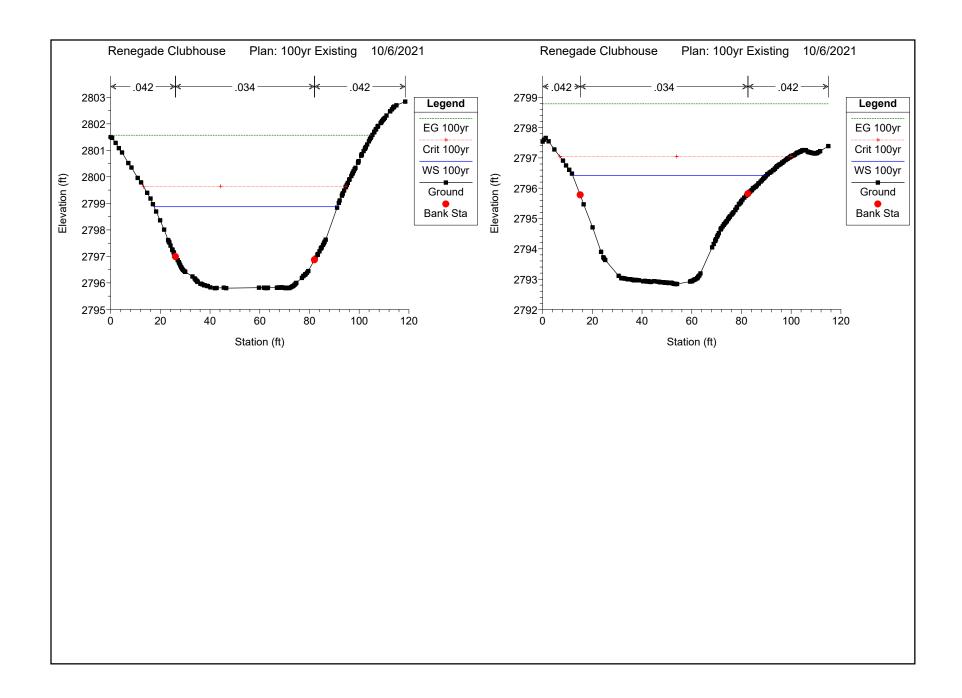




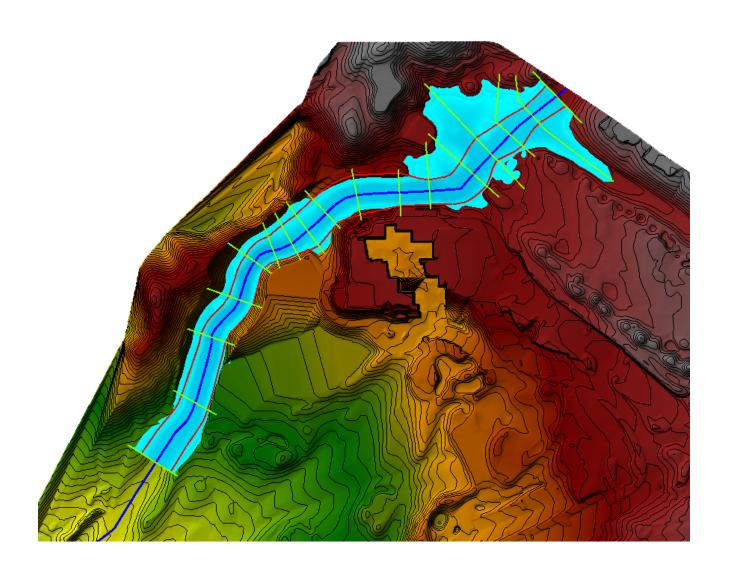






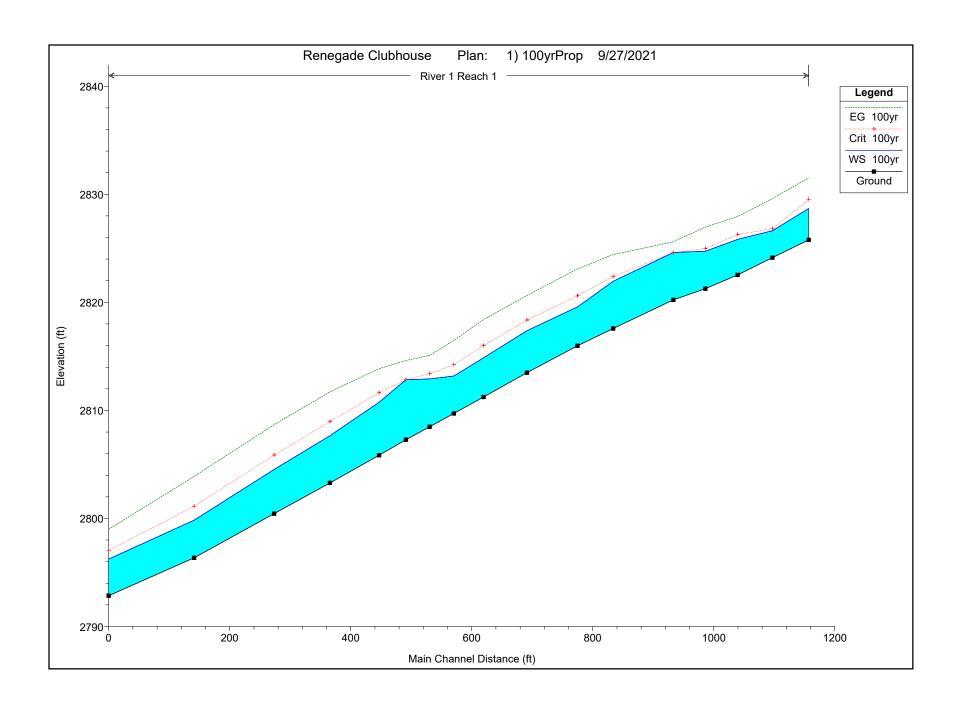


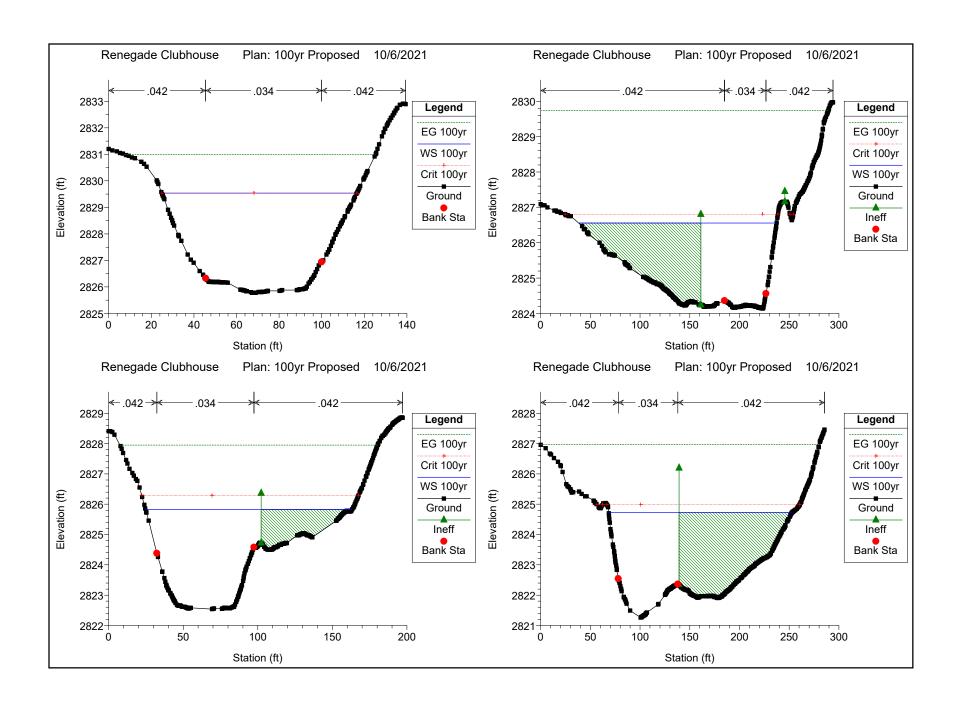
HEC-RAS PLAN & CROSS SECTIONS (PROPOSED)

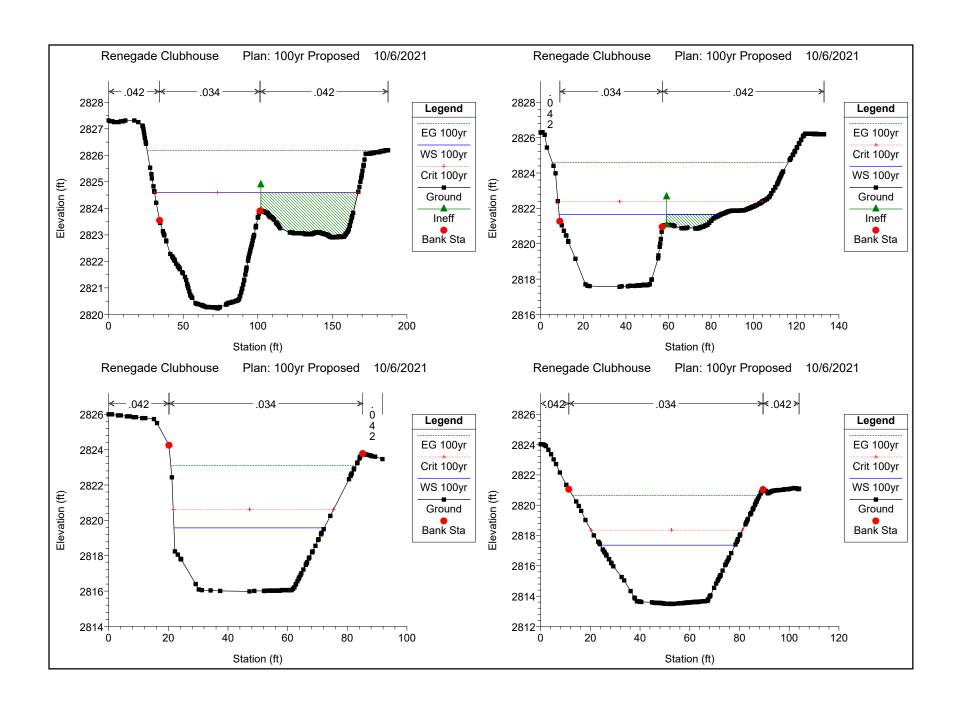


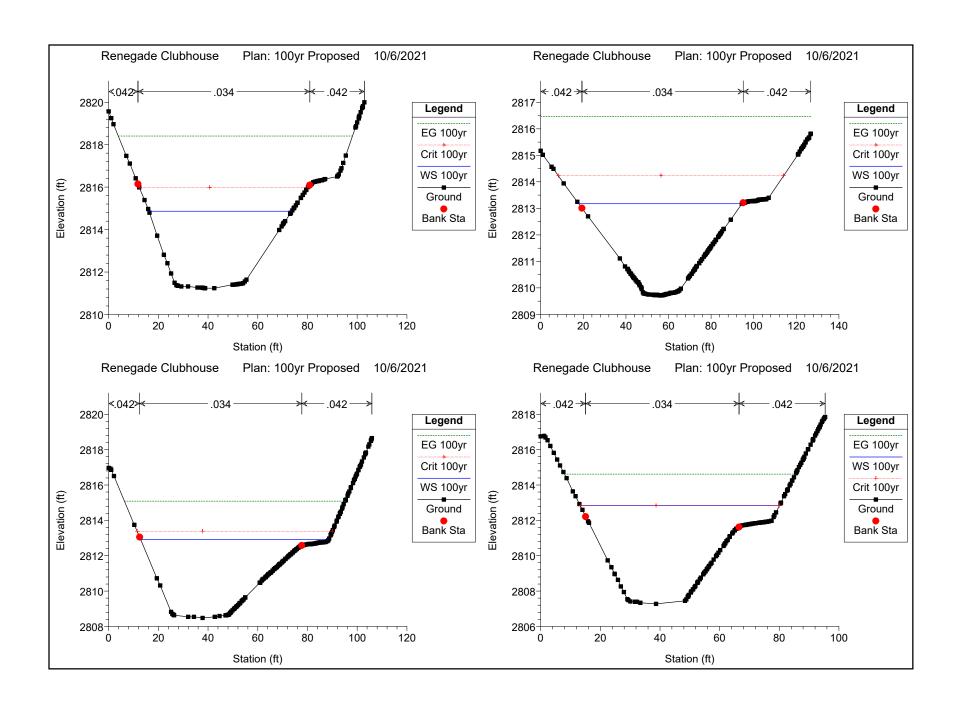
HEC-RAS Plan: 100yrProp River: River 1 Reach: Reach 1 Profile: 100yr

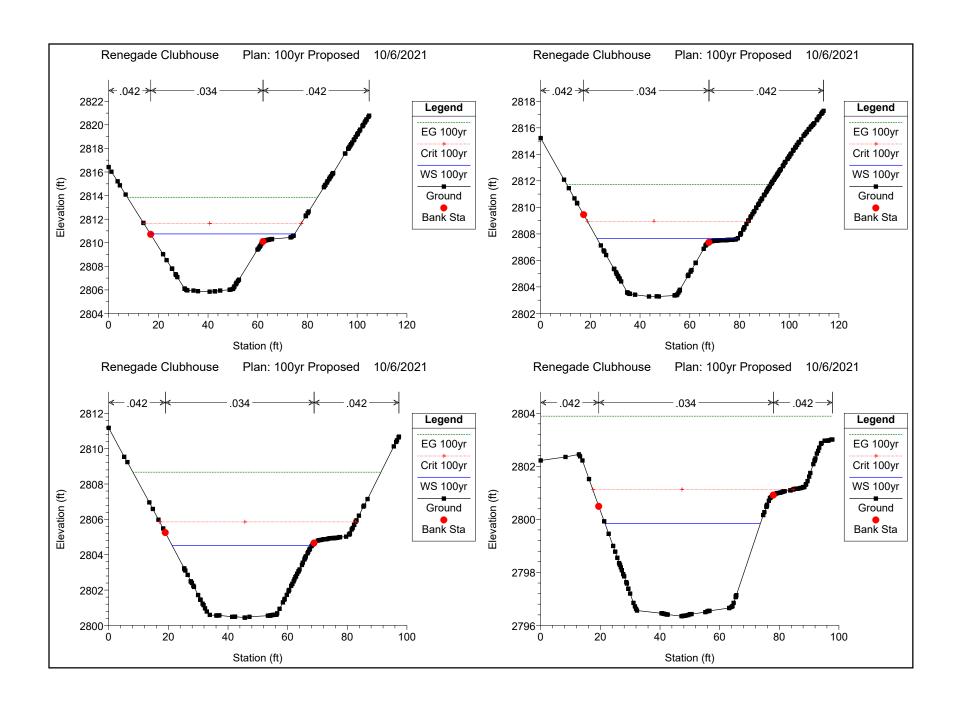
			1 INCACII. INC									
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	1928	100yr	2255.00	2825.78	2829.54	2829.54	2831.00	0.010228	10.21	251.63	91.56	0.96
Reach 1	1868	100yr	2255.00	2824.14	2826.56	2826.81	2829.74	0.040093	15.38	163.37	199.08	1.78
Reach 1	1810	100yr	2255.00	2822.54	2825.83	2826.28	2827.95	0.017970	11.80	197.97	138.54	1.23
Reach 1	1757	100yr	2255.00	2821.26	2824.73	2824.99	2826.97	0.018155	12.17	192.72	184.83	1.24
Reach 1	1704	100yr	2255.00	2820.23	2824.59	2824.59	2826.18	0.011100	10.13	224.24	136.43	0.98
Reach 1	1605	100yr	2255.00	2817.57	2821.65	2822.37	2824.59	0.020169	13.76	164.90	75.95	1.31
Reach 1	1546	100yr	2255.00	2815.98	2819.57	2820.61	2823.11	0.029386	15.08	149.51	50.42	1.54
Reach 1	1462	100yr	2255.00	2813.49	2817.36	2818.36	2820.63	0.027761	14.50	155.47	54.23	1.51
Reach 1	1391	100yr	2255.00	2811.24	2814.86	2815.99	2818.41	0.034117	15.11	149.29	57.47	1.65
Reach 1	1341	100yr	2255.00	2809.72	2813.18	2814.23	2816.46	0.042340	14.54	155.21	76.57	1.78
Reach 1	1302	100yr	2255.00	2808.48	2812.91	2813.38	2815.09	0.017849	11.85	192.26	75.59	1.22
Reach 1	1263	100yr	2255.00	2807.28	2812.84	2812.84	2814.62	0.009988	10.80	217.70	66.77	0.95
Reach 1	1218	100yr	2255.00	2805.84	2810.75	2811.63	2813.86	0.020691	14.18	163.03	58.07	1.34
Reach 1	1137	100yr	2255.00	2803.28	2807.66	2808.96	2811.71	0.031526	16.16	140.97	56.54	1.62
Reach 1	1045	100yr	2255.00	2800.44	2804.52	2805.86	2808.67	0.034284	16.34	138.04	46.87	1.68
Reach 1	913	100yr	2255.00	2796.35	2799.84	2801.12	2803.89	0.037587	16.15	139.66	52.06	1.74
Reach 1	771	100yr	2255.00	2792.84	2796.23	2797.05	2798.98	0.027523	13.31	170.74	74.92	1.48

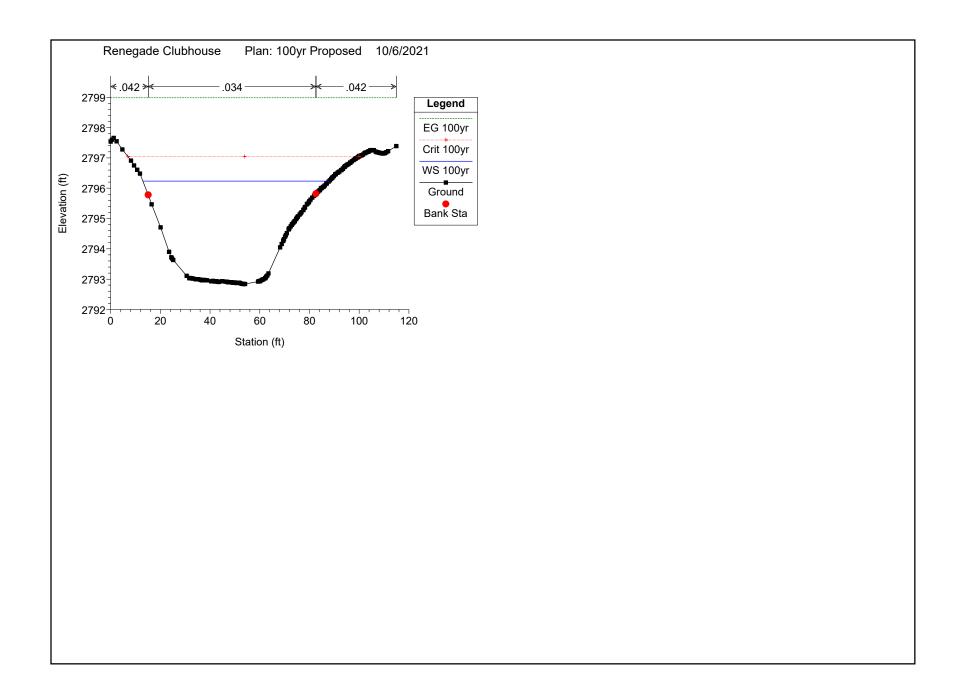












						Entire Se	ection						C	channel Se	ction
Section ID	Flow Type	Q (cfs)	Slope (f/f)	Man'g N Channel	Man'g N LOB	Man'g N ROB	Area (sq ft)	W.P. (ft)	Avg Width (ft)	Top Width (ft)	Hyd Depth (ft)	Max Vel Depth (f/s) (ft)	Hyd Depth (ft)	Vel (ft/sec)	Froude Num
RAS RESULTS-1045	Design Dominant		0.033168	0.034 0.034			73.55 73.55	38.13 38.13	28.84 28.84	37.36 37.36		2.5512.33 2.5512.33			
RAS RESULTS-1137	Design Dominant		.033369	0.034 0.034			71.80 71.80	36.07 36.07	26.59 26.59	35.26 35.26	2.04 2.04	2.7012.63 2.7012.63			
RAS RESULTS-1218	Design Dominant		.028407 .028407	0.034 0.034			75.36 75.36	36.08 36.08	26.08 26.08	35.18 35.18	2.14 2.14				
RAS RESULTS-1263	Design Dominant		0.014818 0.014818	0.034 0.034			97.92 97.92	42.63 42.63	29.32 29.32	41.70 41.70	2.35 2.35				
RAS RESULTS-1302	Design Dominant		.022986	0.034 0.034			90.47 90.47	48.60 48.60	33.63 33.63	48.02 48.02	1.88 1.88				
RAS RESULTS-1341	Design Dominant		0.031256 0.031256	0.034 0.034			89.17 89.17	59.04 59.04	35.96 35.96	58.74 58.74	1.52 1.52	2.4810.17 2.4810.17			
RAS RESULTS-1391	Design Dominant		0.034072	0.034 0.034			78.81 78.81	46.24 46.24	34.87 34.87	45.75 45.75		2.2611.51 2.2611.51			
RAS RESULTS-1462	Design Dominant		0.026531	0.034 0.034			84.05 84.05	45.03 45.03	34.59 34.59	44.39 44.39	1.89 1.89	2.4310.79 2.4310.79			
RAS RESULTS-1546	Design Dominant		.028562 .028562	0.034 0.034			83.20 83.20	46.40 46.40	37.65 37.65	45.76 45.76	1.82 1.82	2.2110.90 2.2110.90			
RAS RESULTS-1605	Design Dominant		0.031107	0.034 0.034			78.32 78.32	42.53 42.53	35.44 35.44	41.72 41.72	1.88 1.88				
RAS RESULTS-1704	Design Dominant		0.013410 0.013410	0.034 0.034			116.12 116.12	60.56 60.56	42.38 42.38	71.05 71.05	1.93 1.93				
RAS RESULTS-1757	Design Dominant		0.022637	0.034 0.034	0.042 0.042	0.042 0.042	101.16 101.16	65.42 65.42		157.80 157.80	1.55 1.55	2.13 8.97 2.13 8.97			
RAS RESULTS-1810	Design Dominant		0.015084 0.015084	0.034 0.034	0.042 0.042	0.042 0.042	116.29 116.29	71.56 71.56	53.10 53.10	88.65 88.65	1.63 1.63	2.19 7.80 2.19 7.80			
RAS RESULTS-1868	Design Dominant		.037858 .037858	0.034 0.034	0.042 0.042	0.042 0.042	94.00 94.00	71.62 71.62		156.75 156.75		1.48 9.65 1.48 9.65			
RAS RESULTS-1928	Design Dominant		0.028011	0.034 0.034	0.042 0.042	0.042 0.042	96.20 96.20	70.01 70.01	52.57 52.57	69.78 69.78	1.38 1.38				
RAS RESULTS-771	Design Dominant		0.022719	0.034 0.034			97.55 97.55	58.17 58.17	42.79 42.79	57.78 57.78	1.69 1.69	2.28 9.30 2.28 9.30			
RAS RESULTS-913	Design Dominant		0.036297	0.034 0.034			76.15 76.15	44.51 44.51	35.09 35.09	43.90 43.90	1.73 1.73	2.1711.91 2.1711.91			

10/4/2021

Major Basin: 01 ID: 771

,					
D: 771	2: 771 Cross Section ID: RAS RESULTS-771				
	<u>Type</u>	Calc (ft)	<u>FS</u>	Value (ft)	<u>Method</u>
	Long Term		1.30		
	General	1.20	1.30	1.56	Lacey
	Local		1.30		
	Bedform	2.39	1.30	3.11	Comments
	Low Flow	2.63	1.30	3.42	
ı	Pressure Flow	0.00	1.30	0.00	
	Headcut	-	1.30	-	
	Tailcut	-	1.30	-	

Total 8.09

Major Basin: 01 ID: 913

Tailcut

D: 913	Cross Section ID: RAS RESULTS-913								
	<u>Type</u>	Calc (ft)	<u>FS</u>	Value (ft)	<u>Method</u>				
I	ong Term		1.30						
	General	1.20	1.30	1.56	Lacey				
	Local		1.30						
	Bedform	3.52	1.30	4.58	Comments				
	Low Flow	2.63	1.30	3.42					
Pres	ssure Flow	0.00	1.30	0.00					
	Headcut	-	1.30	_					

Total 9.56

1.30

ID: 1045		Cross Section	ID: RAS	RESULTS-10	45
	Type	Calc (ft)	<u>FS</u>	Value (ft)	

<u>Type</u>	Calc (ft)	<u>FS</u>	Value (ft)	<u>Method</u>
Long Term		1.30		
General	1.20	1.30	1.56	Lacey
Local		1.30		
Bedform	3.60	1.30	4.68	Comments
Low Flow	2.63	1.30	3.42	
Pressure Flow	0.00	1.30	0.00	
Headcut	-	1.30	-	
Tailcut	-	1.30	-	
Total			9.66	

ID: 1137	Cross Section ID: RAS RESULTS-1137				
	Type	Calc (ft)	FS	Value (ft)	

<u>Type</u>	Calc (ft)	<u>FS</u>	Value (ft)	<u>Method</u>
Long Term		1.30		
General	1.20	1.30	1.56	Lacey
Local		1.30		
Bedform	3.53	1.30	4.59	Comments
Low Flow	2.63	1.30	3.42	
Pressure Flow	0.00	1.30	0.00	
Headcut	-	1.30	-	
Tailcut	-	1.30	-	
Total			9.57	

ID: 1218	Cross Section	ID: RAS	RESULTS-	1218

<u>Type</u>	Calc (ft)	<u>FS</u>	Value (ft)	<u>Method</u>
Long Term		1.30		
General	2.40	1.30	3.12	Lacey
Local		1.30		
Bedform	2.71	1.30	3.52	Comments
Low Flow	2.63	1.30	3.42	
Pressure Flow	0.00	1.30	0.00	
Headcut	-	1.30	-	
Tailcut	-	1.30	-	
Total			10.06	

ID: 1263	Cross Section ID: RAS RESULTS-1263

<u>Type</u>	Calc (ft)	<u>FS</u>	Value (ft)	Method
Long Term		1.30		
General	2.40	1.30	3.12	Lacey
Local		1.30		
Bedform	1.57	1.30	2.04	Comments
Low Flow	2.63	1.30	3.42	
Pressure Flow	0.00	1.30	0.00	
Headcut	-	1.30	-	
Tailcut	-	1.30	-	
Total			8.58	

Major Basin: 01

ID: 1301 Cross Section ID: RAS RESULTS-1302

<u>Type</u>	Calc (ft)	<u>FS</u>	Value (ft)	<u>Method</u>
Long Term		1.30		
General	2.40	1.30	3.12	Lacey
Local		1.30		
Bedform	1.90	1.30	2.47	Comments
Low Flow	2.63	1.30	3.42	
Pressure Flow	0.00	1.30	0.00	
Headcut	-	1.30	-	
Tailcut	-	1.30	-	
Total			9.01	

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Major Basin: 01 ID: 1341

Low Flow

Headcut

Tailcut

Pressure Flow

ID: 1341	Cross Section ID: RAS RESULTS-1341				
	<u>Type</u>	Calc (ft)	<u>FS</u>	Value (ft)	<u>Method</u>
	Long Term		1.30		
	General	2.40	1.30	3.12	Lacey
	Local		1.30		
	Bedform	2.85	1.30	3.71	Comments

2.63

0.00

Total 10.25

1.30

1.30

1.30

1.30

3.42

0.00

ID: 1390 Cross Section ID: RAS RESULTS-1391	•	
	ID: 1390	Cross Section ID: RAS RESULTS-1391

<u>Type</u>	Calc (ft)	<u>FS</u>	Value (ft)	<u>Method</u>
Long Term		1.30		
General	2.40	1.30	3.12	Lacey
Local		1.30		
Bedform	3.08	1.30	4.00	Comments
Low Flow	2.63	1.30	3.42	
Pressure Flow	0.00	1.30	0.00	
Headcut	-	1.30	-	
Tailcut	-	1.30	-	
Total			10.54	

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Major Basin: 01	
ID: 1462	Cross Section ID: RAS RESULTS-1462

<u>Type</u>	Calc (ft)	<u>FS</u>	Value (ft)	<u>Method</u>
Long Term		1.30		
General	2.40	1.30	3.12	Lacey
Local		1.30		
Bedform	2.83	1.30	3.68	Comments
Low Flow	2.63	1.30	3.42	
Pressure Flow	0.00	1.30	0.00	
Headcut	-	1.30	-	
Tailcut	-	1.30	-	
Total			10.22	

ID: 1545		Cross Section	n ID: RAS	RESULTS-15	46
	<u>Type</u>	Calc (ft)	<u>FS</u>	Value (ft)	
	L		4 00		

<u>Type</u>	Calc (ft)	<u>FS</u>	Value (ft)	<u>Method</u>
Long Term		1.30		
General	2.40	1.30	3.12	Lacey
Local		1.30		
Bedform	3.07	1.30	3.99	Comments
Low Flow	2.63	1.30	3.42	
Pressure Flow	0.00	1.30	0.00	
Headcut	-	1.30	-	
Tailcut	-	1.30	-	
Total			10.53	

ID: 1604		Cross Section ID: RAS RESULTS-160)
	_					

<u>Type</u>	Calc (ft)	<u>FS</u>	Value (ft)	<u>Method</u>
Long Term		1.30		
General	2.40	1.30	3.12	Lacey
Local		1.30		
Bedform	2.15	1.30	2.80	Comments
Low Flow	2.63	1.30	3.42	
Pressure Flow	0.00	1.30	0.00	
Headcut	-	1.30	-	
Tailcut	-	1.30	-	
Total			9.34	

ID: 1704		Cross Section	ID: RAS	RESULTS-17	04
	<u>Type</u>	Calc (ft)	<u>FS</u>	Value (ft)	

<u>Type</u>	Calc (ft)	<u>FS</u>	Value (ft)	<u>Method</u>
Long Term		1.30		
General	2.40	1.30	3.12	Lacey
Local		1.30		
Bedform	.99	1.30	1.29	Comments
Low Flow	2.63	1.30	3.42	
Pressure Flow	0.00	1.30	0.00	
Headcut	-	1.30	-	
Tailcut	-	1.30	-	
Total			7.83	

Total Bed Material Discharge (FCD Hydraulics Design Manual, Equation 11.44)

 $D_{15.9}$ 0.176 D₅₀ 1.462 **D**_{84.1} 5.110

G 5.901

HEC-RAS DATA (Existing)	HEC-RAS	DATA	(Existing)
--------------------------------	----------------	------	------------

Reach	River Sta	Profile	Flow Area	Max Chl Dpth	Vel Total	Hydr Depth	Mann Wtd Total	Average Width, W	\mathbf{Q}_{s}
			(sq ft)	(ft)	(ft/s)	(ft)		(ft)	(cfs)
Reach 1	1896	100yr	251.63	3.76	8.96	2.75	0.033	66.92	17.30
Reach 1	1836	100yr	163.39	2.42	13.8	2.14	0.036	67.52	141.81
Reach 1	1778	100yr	195.87	3.36	11.51	2.59	0.033	58.29	45.26
Reach 1	1725	100yr	186.34	3.27	12.1	2.39	0.031	56.98	50.36
Reach 1	1672	100yr	226.51	4.33	9.96	3.08	0.033	52.31	20.64
Reach 1	1614	100yr	193.84	4.14	11.63	2.49	0.03	46.82	32.50
Reach 1	1565	100yr	167.65	3.09	13.45	2.19	0.031	54.26	77.73
Reach 1	1520	100yr	170.03	2.75	13.26	2.18	0.032	61.83	88.23
Reach 1	1454	100yr	309.1	3.75	7.3	2.17	0.035	82.43	10.48
Reach 1	1370	100yr	117.5	2.73	19.19	1.91	0.032	43.04	315.53
Reach 1	1322	100yr	199.22	5.75	11.32	3.45	0.032	34.65	21.75
Reach 1	1275	100yr	147.88	4.3	15.25	2.22	0.029	34.39	75.02
Reach 1	1211	100yr	128.73	2.45	17.52	1.74	0.033	52.54	282.27
Reach 1	1164	100yr	165.78	2.38	13.6	1.87	0.033	69.66	122.61
Reach 1	1078	100yr	227.06	4.41	9.93	3.03	0.032	51.49	19.08
Reach 1	990	100yr	155	2.91	14.55	2.12	0.032	53.26	114.47
Reach 1	892	100yr	178.9	3.07	12.6	2.43	0.032	58.27	64.56
Reach 1	771	100yr	185.42	3.59	12.16	2.38	0.032	51.65	49.39
								Average	86.06
HEC-RAS I	DATA (Prop	osed)							

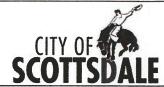
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	(p	,							
Reach	River Sta	Profile	Flow Area	Max Chl Dpth	Vel Total	Hydr Depth	Mann Wtd Total	Average Width, W	\mathbf{Q}_{s}
			(sq ft)	(ft)	(ft/s)	(ft)		(ft)	(cfs)
Reach 1	1928	100yr	251.63	3.76	8.96	2.75	0.033	66.92	17.30
Reach 1	1868	100yr	163.37	2.42	13.8	2.14	0.036	67.51	141.79
Reach 1	1810	100yr	197.97	3.28	11.39	2.55	0.033	60.36	45.00
Reach 1	1757	100yr	192.72	3.47	11.7	2.72	0.033	55.54	45.61
Reach 1	1704	100yr	314.26	4.38	7.18	2.3	0.032	71.75	7.12
Reach 1	1605	100yr	180.01	4.38	12.53	3.55	0.033	41.10	41.89
Reach 1	1546	100yr	149.51	3.59	15.08	2.97	0.034	41.65	105.11
Reach 1	1462	100yr	155.64	3.88	14.49	2.87	0.034	40.11	86.09
Reach 1	1391	100yr	149.3	3.62	15.1	2.6	0.034	41.24	108.95
Reach 1	1341	100yr	155.21	3.45	14.53	2.03	0.034	44.99	108.40
Reach 1	1302	100yr	192.26	4.43	11.73	2.54	0.031	43.40	32.93
Reach 1	1263	100yr	217.7	5.56	10.36	3.26	0.031	39.15	16.12
Reach 1	1218	100yr	163.03	4.91	13.83	2.81	0.03	33.20	46.98
Reach 1	1137	100yr	140.97	4.38	16	2.49	0.03	32.18	88.63
Reach 1	1045	100yr	138.04	4.08	16.34	2.95	0.034	33.83	121.02
Reach 1	913	100yr	139.66	3.49	16.15	2.68	0.034	40.02	140.06
Reach 1	771	100yr	170.74	3.39	13.21	2.28	0.032	50.37	69.77
								Average	71.93

Appendix G Section 404 Certification



Section 404 Certification Form



Before the City issues development permits for a project, the developer's Engineer or the property owner must certify that it complies with or is exempt from Section 404 of the Clean Water Act of the United States. Section 404 regulates the discharge of dredged or fill material into a wetland, lake (including dry lakes), river, stream (including intermittent streams, ephemeral washes and arroyos) or other waters of the United States.

Prior to submittal of improvement plans to Project Review, this form must be completed (and submitted with the improvement plans) as evidence of compliance.

Certification of Section	404 Permit Status:
Owner's Name: Desert Mountain	Phone No.:
Project Name/Description: Renegade Clubhouse	Case No.: 1018PA2020
Project Location/Address: 38580 N Desert Mountain Parkway, Scottsdale, AZ	
A registered Engineer or the property owner must check the applied	cable condition and certify by signing below that:
1. Section 404 does apply to the project because there will the U.S., and:	be a discharge of dredged or fill material to waters of
☐ A Section 404 Permit has already been obtained for this p	roject.
This project qualifies for a "Nationwide Permit," and this pr applicable nationwide permit.	roject will meet all terms and conditions of the
2. Section 404 does not apply to the project because:	
☐ No watercourse waters of the U.S. exist on the property.	
☐ No jurisdictional waters of the U.S. exist on property. Attac	ched is a copy of the COE's Jurisdictional Determination.
☐ Watercourses or other waters of the U.S. do exist on the	property, but the project will not involve the discharge of
dredged or fill material into any of these waters.	Totessional Englished State Action (Civil) State of the
I certify that the above statement is true.	E. SILVERS
Byron Dixon Display's signed by Byron Dixon Di Gall's, Edubaning Byron Dixon On Gall's, Edubaning Byron Dixon On Gall's (1) Edubaning Byron Dixon On Gall'	04/14/2021 APIZONA, U.S.A.
Engineer's Signature and Seal, or Owner's Signature	Date
Title/ Company	
	스테트 보다 아무슨 사람들은 발생이 되었다면 하는데 하는데 얼마를 받았다면 모든데 보다 양물이 되었다면 하는데 얼마를 하는데 없다.

Planning and Development Services

7447 E Indian School Road, Suite 105, Scottsdale, AZ 85251 • www.ScottsdaleAZ.gov

Appendix H Warning and Disclaimer of Liability



GRADING & DRAINAGE LANGUAGE

WARNING AND DISCLAIMER OF LIABILITY

The City's Stormwater and Floodplain Management Ordinance is intended to minimize the occurrence of losses, hazards and conditions adversely affecting the public health, safety and general welfare which might result from flooding. The Stormwater and Floodplain Management Ordinance identifies floodplains, floodways, flood fringes and special flood hazard areas. However, a property outside these areas could be inundated by floods. Also, much of the city is a dynamic flood area; floodways, floodplains, flood fringes and special flood hazard areas may shift from one location to another, over time, due to natural processes.

WARNING AND DISCLAIMER OF LIABILITY

The flood protection provided by the Stormwater and Floodplain Management Ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Floods larger than the base flood can and will occur on rare occasions. Floodwater heights may be increased by constructed or natural causes. The Stormwater and Floodplain Management Ordinance does not create liability on the part of the city, any officer or employee thereof, or the federal, state or county government for any flood damages that result from reliance on the Ordinance or any administrative decision lawfully made thereunder.

Compliance with the Stormwater and Floodplain Management Ordinance does not ensure complete protection from flooding. Flood-related problems such as natural erosion, streambed meander, or constructed obstructions and diversions may occur and have an adverse effect in the event of a flood. You are advised to consult your own engineer or other expert regarding these considerations.

have read and un	derstand the above.	
1018-PA-2020	11/2/1/20	4.14.21
Plan Check #	Owner	Date

Appendix I Relevant Language from Desert Mountain Golf Course Easement

19860153894_62 Unofficial Document

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When recorded return to:

Fennemore, Craig, von Ammon, Udall & Powers 1700 First Interstate Bank Plaza 100 West Washington Street Phoenix, AZ 85003 Attention: PFS PROP RSTR (RS)

RECORDED IN OFFICIAL RECORDS OF MARICOPA COUNTY, ARIZONA MAR 31 '86 - 4.00

KEITH POLETIS, County Recorder

FEE DEPTS

DECLARATION OF COVENANTS, CONDITIONS, RESTRICTIONS

AND EASEMENTS

FOR

DESERT MOUNTAIN PHASE I

6-WM-2021_V

86 - 153894

DECLARATION

OF

COVENANTS, CONDITIONS, RESTRICTIONS AND EASEMENTS FOR

DESERT MOUNTAIN PHASE I

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provided, however, the easement granted in this sentence shall automatically terminate and be of no further force and effect at such time as the improvements defined by the underlying permanent easement are complete and accepted by Developer and the City or any utility company having the right of approval thereof.

- 4.2 Use of Common Areas. Except for the use limitations provided in Section 4.3, each Owner shall have the nonexclusive right to use the Common Areas in common with all other Owners as required for the purposes of access and ingress to and egress from (and use, occupancy and enjoyment of) any Lot owned by such Owner or Common Areas available for the use of said Owner. Such right to use the Common Areas for purposes of access and ingress and egress shall, subject to the Association Rules, extend to each Owner, Occupant and the agents, servants, tenants, family members and invitees of each Owner. This right to use the Common Areas shall be appurtenant to each respective Lot, subject to and governed by the provisions of this Declaration, the Articles, Bylaws and Association Rules and such reasonable limitations and restrictions as may from time to time be contained therein.
- 4.3 Exclusive Use Rightmomentain portions of the Common Areas may be reserved by the Board for the exclusive control, possession and use by the Owner of a Lot or the Owners of more than one but fewer than all Lots. If such an area serves as access to and from two or more Lots, the Owners of the affected Lots shall have joint control, possession and use of such portion of said area as reasonably serves the Lots. The exclusive use rights created herein are subject to the blanket utility easement, maintenance, and architectural and landscape control provisions contained in this Declaration and to such reasonable rules and regulations with respect to possession, control, use and maintenance as the Association may from time to time promulgate. Easements are hereby created in favor of and running with each Lot having such an area for the exclusive control and use of each such area. Each Owner, by accepting title to a Lot, and each Member shall be deemed to have further ratified the easements and rights to exclusive use created by this Section 4.3.
- 4.4 Wall or Fence Easement. There is bereby created an affirmative easement in favor of the Association and the Master Association, their employees and agents, upon, over and across each Lot affected for reasonable ingress, egress, installation, replacement, maintenance and repair of a perimeter wall, fence or other boundary control for the Property and/or Desert Mountain.
- 4.5 Golf Course Easement. There are hereby created nonexclusive easements appurtenant to the property described on Exhibit "C" hereto for the benefit of Developer or other owners thereof and individuals permitted to use the Golf Club Facilities, and any employees, agents, contractors and invitees (including without limitation tournament galleries) of Developer or other owners of said property, or any one else performing services or having obligations with respect to the operation, maintenance or administration of the Golf Club Facilities to go upon or over the areas designated on the Plat as Golf Course Easements during and in the course of play on, or other permitted use of, the Golf Club Facilities, and for the purpose of construction, maintenance and repair of the Golf Club Facilities and related improvements; provided, however, that no permanent improvements in or alterations of the Lots

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easements shall be made or allowed other than: (a) the within said establishment and maintenance of "out-of-bounds" markers or signs consistent with those utilized elsewhere in cornection with the Golf Club Facilities; (b) golf course improvements such as fairways, bunkers, traps, transitional areas between golf course and desert, and the like; and, (c) underground water, cable or utility lines for use in connection with the Golf Club Facilities. During tournament play, special events or other times designated by Developer or other owner of the Golf Club Facilities, temporary cables, including television and radio transmission cables and electrical service lines, and other temporary facilities or structures may be located, maintained and used by Developer or other owner of the Golf Club Facilities in areas designated as Golf Course Easements to facilitate the conduct of such events or to accommodate galleries; provided, however, that any damage to a Lot resulting from such use, unless otherwise repaired, shall be repaired by the Association at its expense. All areas of the easements within any cut-of-bounds stakes or consisting of other than natural desert may be maintained by the Master Association or Developer or other owner of the Golf Club Facilities rather than the Owner at the election of Developer or other owner of the Golf Club Facilities. Nothing shall be placed, maintained or constructed in the Golf Course Easements by any Owner or which shall interfere with use thereof as a playable part of the golf course.

- 4.6 Developer Easement. There is hereby created an affirmative, nonexclusive easement in favor of Dofficial Document and appurtenant to portions of the Property owned by Declarant (as trustee for Developer) or Developer, the property described on Exhibit "B", and any Annexation Property, for ingress and egress over all Common Areas, including without limitation Private Streets, and for the right to go over, under and across, and to enter and remain upon all Common Areas for all purposes reasonably related to Developer's rights and obligations hereunder and to the development, operation, maintenance, advertisement and sale or rental of the portions of the Property, the property described on Exhibit "B", and any Annexation Property owned by Declarant (as trustee for Developer) or Developer. The easement created in this Section 4.6 shall continue until the day on which title to the last Lot in the Property owned by either Declarant (as trustee for Developer) or Developer is conveyed to a third party for value, other than as security for performance of an obligation.
- 4.7 <u>Master Association Easement</u>. There is hereby created an affirmative, nonexclusive easement in favor of the Master Association for ingress and egress over all the Property for the purpose of enabling the Master Association and its contractors, employees, representatives and agent to implement the provisions of the Master Declaration.
- 4.8 Easements Appurtenant. There is hereby created on, over and under the Private Streets easements appurtenant to the property described on Exhibits "B" and "C" hereto for ingress and egress and access to and from the various portions of said properties and for installing, constructing, replacing, repairing, maintaining and operating all utilities and utility services (whether public or private), including without limitation all those utilities and services described in Section 4.1, to and from said properties to which the easements are appurtenant.